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MILITARY EDUCATION
IN THE
UNITED STATES

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WITHDRAWAL

THE ARMY WAR COLLEGE, WASHINGTON, D. C.

MILITARY EDUCATION

IN THE

UNITED STATES

BY

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and Pistol Shooting; Manual for Aspirants for
Commissions in the United States
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May 1, 2006

DEDICATION.

To President Guy Potter Benton,
of the University of Vermont, as an appreciation of his support and encouragement of the military department; and
To the Students of the University
Participating in the classes in military science and tactics, in recognition of their loyalty, respect and faithfulness,
this volume is dedicated.

FOREWORD.

"For gold the merchant plows the main,
The farmer plows the manor;
But glory is the soldier's prize,
The soldier's wealth is honor."—*Burns.*

Numerous volumes have been written on education in the United States, treating the subject historically, philosophically, pedagogically, and from other points of view. Most of these books have handled the topic from the standpoint of their respective authors in a more or less exhaustive manner, as far as that part of education which pertains to civil occupations, professions, and accomplishments is concerned, but none of them have even given a glimpse into those features which deal with military preparedness, national defense, and the thousand and one things necessary to make an educated military man, professional or amateur. A good illustration of this is contained in Doctor Andrew S. Draper's book, "American Education," in which the entire space given to military education is contained in the following lines:

"The Military and Naval Academies are wholly subject to the Secretaries of War and Navy, and no distinct schoolman carries the light of his guild into the recesses of their affairs."

A preface is no place for criticism. Let the reader draw his own conclusions.

The writer has attempted in the accompanying pages to contribute a volume on a subject woefully neglected yet one which is very important, and it is hoped his efforts will serve in a small measure to bring the matter more prominently before the public. The more the public learns of our military system the more popular will the military service become with the masses. The average American citizen sadly lacks knowledge of the Army, its methods, its duties, and its educational system. No attempt will be made to charge this ignorance to any particular class of our citizens, for college graduates, educators, business men and professional men, with a few shining exceptions, have equally neglected to inform themselves on the workings of this very important institution of our Government. This negligence has lead many to believe that the army man's life is one of idleness, light

thinking, pomp and feathers, and this opinion has had as its legitimate child a silent popular dislike for the services; one might say a sort of

> "I do not love thee, Doctor Fell;
> The reason why I cannot tell;
> But this alone I know full well,
> I do not love thee, Doctor Fell."

unpopularity.

Our Army has never been charged with a responsibility, whether of a military or civil nature, where it has failed to perform its duty to the entire satisfaction of the American people. This enviable record may be traced directly to the character, the sense of honor and the mental and physical accomplishments obtained through the military edutional methods in existence. This important branch of our educational system is deserving not only of a reasonable amount of unprejudiced space in any treatise on education, but of a volume of its own.

ACKNOWLEDGEMENTS.

A book of this character is of necessity largely a matter of compilation. In the present effort a great part of the text is taken from orders issued from the headquarters of the Army, eliminating here and adding there, and frequently changing the language to conform to the general plan.

The commandants and secretaries of the Army Service Schools have been very kind in furnishing data pertaining to their respective institutions, and the same may be said of the officers of the Army on duty with universities, colleges and academies as professors of military science and tactics, and with the Militia as inspector-instructors.

The author is under especial obligations to Professor J. Franklin Messenger, Ph. D., Professor of Education and Director of the Summer School, University of Vermont, for many valuable suggestions and constant encouragement during the preparation of these pages. Doctor Messenger has also written the *Introduction* to this book.

To Doctor Robert T. Kerlin, Professor of English literature at Virginia Military Institute, is due the credit for suggesting the preparation of a volume on military education.

Space forbids giving the names and particular assistance given by the many officials of educational institutions and officers of the Army in the preparation of the following chapters but the writer is nevertheless most thankful and grateful to each and every one of them.

IRA L. REEVES.

Military Department, University of Vermont,
Burlington, Vt., April 14, 1914.

INTRODUCTION.

If all that is said about military education by all of the teachers of education in all of the colleges in the country were written in a book I doubt if it would make a very deep impression. We study the education of the Greeks and of the Romans, and we know to what extent each was military, but how many of us know to what extent education in the United States is military? How many of us think that training for the army is drill, but not education? How many of us know that there is any military education except at West Point, Annapolis and a few state schools?

In our discussions and lectures on school administration we treat of a great variety of schools and their different purposes, but military schools are hardly mentioned even with vocational schools. And yet the army is by far the largest body of men supported by the government, and it is practically the only body that is both trained and supported by the government. We are interested in the education of farmers, mechanics, tradesmen and doctors because we realize that we are all dependent upon them for one thing or another. As individuals we are not so directly dependent upon the army, at least in time of peace, but as a nation we are greatly dependent upon it, and military education is a matter of great public concern.

We hear much discussion about appropriations of Congress for the War Department, about the size of the army and other military matters. We accept the principle that a given work can be done by fewer men if the men are properly educated than if they are not. We are interested in education as a matter of economics. The same principle applies to the army. Military education is a part of national conservation, and should have a more prominent place than it has in the study of the history of education and school administration. In any book on education in the United States at least one chapter should be devoted to military education if the system is to be treated at all adequately.

Since reading the manuscript of Captain Reeves' book I have looked in my own library to see what was there about military educa-

tion. It is needless to say that I have not found enough to mention. There is a singular gap in educational literature. I trust that this book will help fill the gap, and that writers on education and teachers of education in colleges will find it a convenient and valuable source of information.

J. Franklin Messenger.

University of Vermont.

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MILITARY EDUCATION IN THE UNITED STATES.

CHAPTER I.

MILITARY EDUCATION, GENERALLY.

"The Church utters her most indignant anathema at an unrighteous war, but she has never refused to honor the faithful soldiers who fight in the cause of their country and God. The gentlest and most Christian of modern poets has used the tremendous thought:—

"God's most dreaded instrument
In working out a pure intent
Is man arrayed for mutual slaughter,
Yea, Carnage is his daughter."

—Frederick William Farrar.

The military is among the oldest of all professions. The very first chapters of history tell of wars and warriors, of races and nations arrayed against each other in panoply of war.

The primitive man whose weapon was but a knotted club, or the sling-shot, practiced the use of his crude implements of combat until he became skilled in their manipulation. His dexterity suggested improvement in the weapon and in turn the improved weapon called for a different training of the user.

Thus wars, and the methods by which they were fought, early engaged the attention of many inventive minds, and to this day, a large part of the world's best talent has been devoted to the science and art of war. There has not been in the past, nor is there now, any line of human activity upon which there has been more brains employed and energy expended, than in the profession of arms—wars and preparation for them.

The development of any line of effort calls for some system of education in the art or science of that particular effort. In all commercial activities, competition has forced a thorough system of education covering the particular profession or trade, or other human endeavor. The military was the first competition engaged in by man. It no doubt antedates rivalry in the chase and tests of physical strength, both of which early received the attention of the human race.

War is competition in the most accentuated definition of the word. The great energy required in trying campaigns, and the extreme tests of physical courage and endurance on the field of battle cannot have a parallel in any other line of man's work.

In all forms of contests the day of the event is preceded by many days of preparation on the part of the prospective contestants who hope for victory. This preparation is calculated to produce a superior knowl-

edge of method by which success may crown the effort of the participant. In athletics this preparation takes upon itself largely the form of physical training, yet in most athletic contests where physical training is equal between those competing, he who uses his brains best will be the victor.

There was a time in the history of the world when success on the field of battle was determined very largely by the relative physical strength of the soldiers of the opposing armies, together, of course, with the necessary courage always expected of the successful fighting man. This condition has, however, long since passed and to-day the success of contending armies is largely determined by the training of the leaders in all that pertains to the art and science of war, and the instruction of the men in the ranks in the manipulation of their weapons and the execution of the various formations necessary to conduct them to their proper places in the fighting line or other positions on the battlefield where their services are required. The modern battle is therefore more of a contest of brains than of brawn.

The first attempts at education in military art consisted in working out efficient methods of throwing a spear or stringing a bow, and instruction in the school of archery. This teaching was more for the individual than for the mass.

As the human race developed along other lines the military kept pace—in fact set the pace—and today this art and science has grown to such an extent and has become so intricate in its multiplicity of branches that it is no longer possible for any human being to master that which it has to offer along its various lines. Military education today is largely one of specialization. The great commander of the future cannot hope to have an intimate knowledge of the workings of all the elements that make up his command. His knowledge will consist chiefly of a proper appreciation of the value as a part of an effective fighting machine of the various arms of the service which constitute his army. He must be content to leave the details of the workings of these numerous parts to specialists. His staff will be composed of military men educated along special lines. He will be the directing force; his immediate assistants the brains through which that force operates.

Any attempt to trace the development of military education from the earliest records to the present date would in itself make a volume greater than this one. The purpose herein sought is to give a fair knowledge of military education in the United States as it exists today, rather than to trace the development of our present system from its beginning; therefor, but a brief insight into the early history is attempted.

For the purposes of this volume the history of military education need not go back further than the War of the Revolution. The soldiers of the colonies before this war, who engaged in numerous battles with the native Indians, and in some cases fought out on American soil, quarrels fomented in Europe, learned the work of a soldier in the hard school of experience. The battles in which they were engaged, however, were more in the nature of guerilla warfare, where the niceties of the art of war were not called for. Our War for Independence was a conflict of a different sort; the massing of raw militia and volunteers in great numbers without any definite system of organization, discipline, or instruction, soon showed to the great minds behind the movement for independence wherein our greatest weakness lay—the want of trained and educated leaders, organizers, disciplinarians and teachers. This great need was partially met by giving positions of military rank and authority to foreign soldiers of education and experience, notably De Kalb, Pulaski, Kosciuszko, and Marquis de Lafayette.

Washington was a firm believer in military education. Many of his writings expressed in the strongest of language his feelings in regard to this matter. In his polite but vigorous manner he deprecated on more than one occasion the lack of proper military preparedness in the way of trained and educated officers, and frequently expressed his impatience at the failure of the directing authorities to appreciate this great flaw in our military organization, during different periods of this long-drawn-out war. He advocated the founding of a military academy for the education of officers for the Army, and it was largely through his efforts that the Academy now at West Point was created by Act of Congress in 1802.

EARLIER EDUCATION IN THE ARMY.

Efforts by the military authorities to establish and maintain schools of practice in the Army began almost with the organization of that institution, but did not bear fruit until some years following the War of 1812. The necessity for such schools became manifest at an early date. Our operations on land during our second war with Great Britain no doubt had a great awakening influence. Most of our disasters during this indecisive war could be traced directly to the lack of trained officers. The authorities were aroused to action and the School for Artillery was established in 1824. In 1826 a School for Infantry was established. The first of these schools is still main-

tained, the latter was short lived and its successor is the present "Army Service School."

In 1823, Gen. Theodore J. Jesup, Quartermaster General of the Army, in a communication to Honorable J. C. Calhoun, Secretary of War, made the following recommendation:

"The importance of an army school of practice is too obvious to require demonstration. Without such an establishment, uniformity of discipline cannot be expected, nor can the government be sufficiently acquainted with the character, capacity, and attainments of its officers to be able to employ them with advantage in the event of war. In developing character and talent, a school properly organized would have the same advantage in peace which active service would have in war. It should be organized on a liberal scale, and, as soon as the circumstances of the service shall permit, should embrace the theory and practical application of every branch of military science. In the present state of our army it would be difficult to form a school on a scale so extensive; but as regards a knowledge of the separate arms much might even now be done.

"The regiments of infantry, if the officers were properly instructed in the elements of military science, would, for that arm, present the best possible school, but unfortunately, very few of them have received even the rudiments of military education; of consequence, no advance is made by that arm beyond the mere parade and drill of a garrison."

To Gen. Jesup is undoubtedly due the credit for the establishment of the first army school of practice in the United States. The first of these schools, as stated, was the "Artillery School" which was established by the War Department, April 5, 1824, the order directing ten companies of artillery to be stationed at Fortress Monroe, Virginia, to be organized as a regiment and designated the "Artillery Corps for Instruction."

A "School for the Instruction of Infantry" was established at Jefferson Barracks, Missouri, (near St. Louis) in 1826. The site of Jefferson Barracks was chosen by Generals Gaines and Atkinson in the early summer of that year. Upon approval of their selection Captain Stephen W. Kearney, with several companies of the Sixth Infantry, first occupied the camp site July 10, 1826. On September 17, of that year, Colonel Henry Leavenworth, Third Infantry, arrived with four companies of his regiment from Green Bay, Wisconsin. On October 23 the camp was designated as Jefferson Barracks, in honor of the signer of the Declaration of Independence. The command of the camp fell to Colonel Leavenworth, the senior officer. To him is due the honor of conducting the first "Infantry School of Instruction."

This school was but a short time in existence. No similar school was attempted until 1881 when General Sherman issued his orders that such a school should be organized at Fort Leavenworth, Kansas. It is a matter of interest to note that the site of the fort at which our principal Service Schools are now conducted was chosen by Colonel Leavenworth and that the post now bears his name.

Major General Jacob Brown, Commanding the Army, in his annual report for 1826, discusses the benefits to be derived from the school established at Jefferson Barracks as follows:

"The benefits which are believed naturally to spring from the system in question are important and manifold. Among them may be noted, in general terms, habits of uniformity and accuracy in the practical routine of service, fresh incitement to the cultivation of military knowledge, emulation and esprit de corps among the troops, and mutual conformity and general elevation of individual character among the officers. But by the enervating influence of a passive garrison life, influence which, without the adoption of this or a similar system, it is impossible to resist, these high qualities, so invaluable to an army, must in a measure be forfeited.

"With this view of the subject, it has been thought desirable to extend the principle as far as possible for the infantry also. Duties of an active nature are, perhaps, more frequently enjoined on this arm of the service than on artillery, but it stands in no less need of the advantages to be derived from a school of practice. The numerical strength of our infantry regiments is indeed small, considering the wide extent of frontier which they are commissioned to defend, and the detachments could not, perhaps, be permanently drawn from them without prejudice to the ulterior object of their maintenance; but while this objection would be effectually obviated by the increased efficiency which such an institution is calculated to produce, the salutary operation of it in other respects, it is hoped, will in time be generally felt and fairly appreciated."

General George B. Davis in an article in the United States Cavalry Journal in December, 1895, makes interesting comments on this early attempt at military education. General Davis said:

"From an examination of such meager references to the establishment as can be found in the letter and order books of the period, it is apparent that the school was neither begun nor maintained upon a scale of wasteful extravagance. After some correspondence with the Department, Colonel Leavenworth was informed, under date of April 22, 1827, that each company of his regiment was to be provided with a copy of 'L'Allemand's Artillery.' It is probable that the companies stationed at the school were also equipped with 'Scott's Tactics' and the General Regulations of the Army, and that some sort of instruction in drill and regulations was carried on, but not for long, as the letter announcing the shipment of the text books in artillery bears date April 21, nearly a month subsequent to the date of the order transferring the garrison of Jefferson Barracks to the Upper Missouri. And so passed, after a life so short as to have deprived the undertaking of anything like an epoch-making character, the first attempt to set on foot a school for the practical instruction of officers, not only in the United States, but in all probability upon the Western Continent as well."

To the persistency with which Major General John Pope, U. S. Army, urged upon the authorities a school of practice is due the selection of Fort Leavenworth as the place for the establishment of the Army Service School. As the likelihood of trouble with the Indian tribes was lessened, it was the general policy of the War Department to establish military posts having larger garrisons. General Pope who for many years was in command of the Department of the Missouri, in commenting on this policy in his report for 1877 said:

"I have so often recommended this consolidation of troops, that I dislike to urge it further; but it will be proper to again invite attention to the great advantages for such a purpose possessed by the military reservation at Fort Leavenworth."

The General pointed to these advantages in the following:

"We have here a reservation large enough for convenient accommodation of at least four regiments, situated at the intersection of many railroads, and easy of access and communication in every direction; in the midst of as fine an agricultural and stock raising country as there is in the United States; where troops can be supplied at a minimum cost, and be instructed under the most favorable circumstances, and where they would be conveniently placed at a moment's notice to be transferred to any point where they might be needed, and sent there in the best condition for duty. As a depot for troops, central enough to fulfill any demands for service at any point west of the Mississippi River, and, indeed, far east of it, I know of no place so suitable, and as the reservation belongs to the United States no expense would be involved, such as would be necessary to build barracks, which, with the labor of a considerable number of prisoners in confinement here, would be trifling as compared with the cost of building elsewhere. I need not point out the benefits to the service of having two or three regiments concentrated here for military instruction and exercises."

General Pope continued to urge the establishment of a school at Fort Leavenworth until General Sherman finally decided to act. The result of this action is given in much greater detail in Chapter VII, on the Army Service Schools at Fort Leavenworth, Kansas.

Instruction in military art and science in the United States prior to the Civil War was confined almost exclusively to that given at West Point and in the Regular Army. The regular "muster" periods during that time, consisting of so-called militia, were a little better than picnics. The course of instruction was in no sense educational and consisted mainly of a few simple maneuvers which any volunteer organization would be able to learn within a few days.

In the period immediately following our war between the states, our citizens already sated with fighting, felt themselves to be a nation of veterans, and for a number of years our preparedness for national defense rested very largely upon our past accomplishments along military lines rather than up-to-dateness of training and education.

During the Civil War there were several schools organized whose specific function was the preparation of young men to become officers in volunteer forces. One of these institutions was known as the Free Military School, which was established at Philadelphia, Pa., by the Supervisory Committee for Recruiting Colored Troops, on the 26th of December, 1863, and remained in operation until September 15, 1864, when it was closed for the want of funds to sustain it. During this period 484 students were graduated, passing a successful examination before the board of examiners at Washington, D. C., of which Major General Silas Casey was President. Of the number of graduates three were recommended for appointment as colonels, seven as lieutenant-colonels, seventeen as majors, one hundred and fifteen as captains, one hundred and forty-nine as first lieutenants, and one hundred

and ninety-three as second lieutenants. It would appear from the number who passed the examination that the work of the school was most efficient. No data has been found as to how many were actually commissioned.

After the close of the Free Military School the preceptor, Colonel John H. Taggart, who had been colonel of the Twelfth Regiment of Pennsylvania Reserves, founded what he called the United States Military School, also located at Philadelphia. This school was established on somewhat the same basis as its predecessor, the Free Military School, but enlarged its sphere, receiving candidates for positions in the Veteran Reserve Corps, and charged a moderate sum for tuition. The graduates of this school were very successful in passing the examination before General Casey's Board of Examiners, upwards of forty having graduated ranging in grade from majors to second lieutenants. All of the students who entered this school to qualify themselves for commissioned officers of the Veteran Reserve Corps passed successfully and were commissioned.

The curriculum included the study of military tactics, army regulations and the preparation of army papers and had a course in mathematics.

The school supplied all the requisite books and charged a fee of $20 for one month's course, $30 for two months, with two sessions daily. Soldiers were admitted for two weeks at $10.

The great victory of the armies of the Northern States in preventing the disruption of the Union lead many to believe that as a military nation we were invincible, failing to realize that at the beginning of the war the South was no better prepared for it than the North, and that both governments were practically on the same basis as regards organizing volunteer troops into armies and training and equipping them for service on the field of battle. It was late in the second year of this great conflict before the armies of either the North or South could be said to be made up of seasoned and trained soldiers, lead by competent officers.

Several years after the close of this war a few patriotic citizens brought to mind the old military axiom, "In time of peace prepare for war," and remembered that unnecessary sacrifices of the men, money and time of both sides of this internecine conflict was due entirely to the lack of educated and trained officers and noncommissioned officers at the outbreak of that strife. To these far-sighted patriots must be given a large share of credit for whatever there is of military education in the United States today.

A brief history of the civil institutions of learning now maintaining departments for instruction in military art and science is given in Chapters IV and V. These sketches also include a description of the military work attempted and something of the facilities. The colleges and universities described in Chapter IV are the land grant institutions. Other colleges, academies, and schools having military departments are described in like manner in Chapter V. It will be unnecessary to occupy space here giving any of the history of the development and growth of these schools.

It is a hopeful sign that military education and drill in the schools, academies, colleges and universities of the United States has never been so general or so popular as it is today. Its very great benefit at institutions of learning as an aid to academic work, and its acknowledged moral, mental and physical benefits are becoming more appreciated as the subject is becoming better understood.

THE MILITARY EDUCATIONAL SYSTEM OF THE UNITED STATES.

The military educational system of the United States today, in so far as the War Department exercises supervision, comprises the following:

1. The United States Military Academy at West Point, New York, for the education of cadets who are commissioned on graduation as second lieutenants in the army.

2. Post schools for the instruction of enlisted men of the Regular Army at military posts.

3. At each military post a Garrison School for the instruction of officers of the Army in subjects pertaining to their ordinary duties.

4. *The Army Service Schools,* comprising the following:

a. The Army War College, Washington, D. C.

b. The Army Staff College, Fort Leavenworth, Kansas.

c. The Coast Artillery School, Fort Monroe, Virginia.

d. The Engineer School, Washington Barracks, Washington, D. C.

e. The Mounted Service School, Fort Riley, Kansas.

f. The Army Medical School, Washington, D. C.

g. The Army Signal School, Fort Leavenworth, Kansas.

h. The Army School of the Line, Fort Leavenworth, Kansas.

i. The School for Bakers and Cooks, Washington Barracks, District of Columbia.

j. The Schools for Bakers and Cooks, Presidio of San Francisco, Cal.

k. The Army Field Engineer School, Fort Leavenworth, Kansas.

l. The Army Field Service and Correspondence School for Medical Officers, Fort Leavenworth, Kansas.

m. The School of Fire for Field Artillery, Fort Sill, Oklahoma.

n. The School of Musketry, Fort Sill, Oklahoma.

o. The Signal Corps Aviation School, San Diego, Cal.

5. The military departments of civil institutions of learning at which officers of the Army are detailed as professors of military science and tactics under the provisions of law.

This vast educational system which has as its primary object the schooling of our military forces in the art and science of war, is thoroughly organized, and competently supervised with an efficient force of instructors. The entire personnel of the supervising and instructional force is selected from the best material available, and each instructor is usually a specialist in his particular line.

The curriculum of the Service Schools is usually very heavy, the course requiring the undivided attention of the student. The competition among the students for high standing in their classes is keen, as it is very desirable to finish the prescribed courses with honors.

In addition to the civil institutions of learning that have officers of the Army detailed for duty in connection with instruction in military science and tactics, there are a number of smaller schools giving more or less instruction in military drill, but few of them attempt anything beyond mere movements in the school of the squad, school of the company, and in exceptional cases movements in the battalion. A number of high schools have excellent military instruction of this class, notably those of Boston. While this kind of work is very commendable and of unquestioned benefit to the cadets participating in it, it is generally considered more in the light of disciplinary and physical exercises than of real military value, and cannot be seriously counted on as creating a body of men competent to officer volunteer troops in time of war.

MILITARY EDUCATION OF THE ORGANIZED MILITIA.

While the theoretical and practical instruction of the officers and enlisted men of the organized militia (National Guard) of the various states is more or less in the hands of the officers of the Regular Army who have been designated by the War Department for duty with these troops as inspectors-instructors, the responsibility of the system of

instruction rests mainly with the officials of the respective states and does not, strictly speaking, constitute a part of the educational system of the Army, proper. The system is dealt with in considerable detail in a separate chapter.

Some difficulty has been encountered in determining the dividing line between "military education" and "military training," if any division is to be recognized. The two are so closely interwoven that any rule of division applied would be sure to meet with opposing opinion. The test here attempted has been that of whether the subjects taught are a part of the curriculum of an organized school, or whether prescribed in routine orders as a military drill, maneuver or other practical military exercise. The demarcation is usually sufficiently plain to merit general agreement as to which class it belongs.

Something about the responsibility for both training and education of those in the military service would be instructive. In military organizations commanders of units are held responsible by higher authority for the efficiency of the various elements of their respective commands. The efficiency includes both practical and theoretical instruction. The methods to be pursued and the courses of instruction are usually prescribed by those higher up, leaving to the immediate commander the responsibility of carrying out the details in an effective manner.

In the United States Army department commanders are charged with a large measure of the responsibility for the training and education of the officers and men of their respective jurisdictions. This applies with especial emphasis to the practical instruction or training. The Army Regulations names these responsibilities in the following language:

> In time of peace a department commander is charged, under direction of the War Department, with the duty of preparing for war all the troops and all the military resources of his department, and with the administration of all the military affairs of his department, except as otherwise prescribed by Army Regulations or existing orders. In time of war he is charged, under direction of the War Department, with the duty of recruiting, organizing, equipping, training, and forwarding all reservists, militia, and volunteers called for within his department, and with the administration of the affairs of troops not forming part of the forces in the field or excepted from his control by orders or regulations of the War Department. He will administer his department so as to insure complete continuity of function in peace and war, and the tactical division and other tactical units so as to insure their constant readiness to take the field without material change of administrative machinery.
>
> He will at annual concentrations of his tactical division, or major portions thereof, secure for himself and his division staff as much practice as possible in the actual handling and supply of a division in the field.
>
> He will have charge of such matters pertaining to the instruction, camps of instruction, maneuvers, mobilization, and concentration of the Organized Militia within his department as may be assigned to him by the War Depart-

ment. From the date on which mobilization of the Organized Militia is ordered all officers of the Regular Army on militia and college duty in a State, Territory, or the District of Columbia affected by the call will be under the immediate orders of the commander of the department in which they are serving, if not already subject to his authority.

* * * * * *

He will enter into cordial relations with the military authorities of the States embraced in his department, will ascertain as far as practicable the degree of care exercised by the State authorities in storing and preserving United States property, and will advise them as to the proper methods to be followed in regard thereto.

He will keep himself informed as to the efficiency for field service of the State forces, and in his annual report will express an opinion as to the fitness for field service of the tactical divisions within his department. He will include in his annual report a statement of the duties performed in connection with the Organized Militia.

With a view to determining the degree of preparedness for war service of regular troops in his department and the capacity of officers for the exercise of command appropriate to their rank, he will, so far as practicable, inspect the regular troops of his department once each year during the period of field training, and will make or require to be made such other inspections as he may deem necessary. Upon conclusion of these inspections and at such other times as he may deem advisable, he will report to The Adjutant General of the Army the names of any and all officers belonging to his command who are believed to be incapable, from any cause, of performing the duties of their several grades, either in garrison or in active service in the field. Such reports will be accompanied by the evidence covering each case. He will also report any errors, irregularities, or abuses requiring the action of higher authority. He will exercise general supervision over garrison schools and will coordinate post-graduate work with a view to securing uniformity of instruction and progressive tactical training throughout his command. He will exercise immediate supervision over the training and instruction of units of his command not attached or belonging to brigades.

He will announce annually the seasons for garrison and field training and will allot a portion of each year for the training of the combined arms.

Upon the recommendation of brigade and other subordinate commanders, he will designate the practice season for small-arms target practice; will examine reports of target and service practice of all arms of the service, and will issue the necessary orders for holding small-arms target competitions within his department.

* * * * * *

Among the duties prescribed for a brigade commander by the Army Regulations is a full measure of responsibility for the instruction of the troops comprising its organization, including the supervision of garrison schools. These duties are set forth as follows:

A brigade commander is charged with the duty of preparing for war all troops and all the matériel pertaining to his brigade and with the duty of assisting the department commander in the performance of his functions in connection with the Organized Militia. He will command his brigade and will be responsible for its instruction, tactical efficiency, and preparedness for war service.

He will supervise garrison schools, giving especial attention to the post-graduate course of instruction for officers of his brigade with a view to insuring uniformity of instruction and progressive tactical training throughout his command.

He will visit each post garrisoned by troops of his brigade at least once each year during the period of garrison training, and during such visits will examine into the results obtained in garrison schools and will personally supervise the post-graduate course of instruction; in addition thereto he will

personally conduct or supervise such field exercises, war games, terrain exercises, tactical or staff walks or rides, and require the solution of such map problems or the performance of such other duty as may be necessary to determine the amount of progress made and the fitness of officers for the exercise of command appropriate to their rank, theoretical instruction being substituted for practical training only when climatic conditions make outdoor work undesirable. Whenever practicable the brigade will be concentrated during the period of field training with a view to developing in succession, under the personal supervision of the brigade commander, the field efficiency of the company, battalion, regiment, and brigade. During the period of field training he will make the annual tactical inspection * * *

Upon the conclusion of this inspection and at such other times as he may deem advisable he will report by name to The Adjutant General of the Army any and all officers who are believed to be incapable, from any cause, of performing the duties of their several grades, either in garrison or actual service in the field. Such reports will be accompanied by the evidence covering each case. From time to time he will report any errors, irregularities, abuses, or offenses requiring the action of higher authority, and will at all times take the necessary corrective action when efficiency is found below a proper standard.

During his visits to posts herein prescribed the brigade commander will be accompanied by one staff officer; in the field he will be accompanied by his entire staff.

He will exercise general supervision over the target practice of the troops of his brigade and will witness combat firing, field firing, and proficiency tests whenever practicable.

He will be regarded as an intermediate commander * * * in all matters pertaining to target practice, the appointment, promotion, assignment, transfer, detail, leave of absence, resignation, dismissal, retirement, efficiency and discipline of officers, the instruction and tactical efficiency of his brigade and in such other matters as are necessary for his information or require his action or control, but his headquarters will not be made an office of record, and administrative work will not be permitted to interfere with his duties as a tactical commander.

He will perform such other duties as may be assigned him by superior authority.

A district commander in the Philippines or a commander of a Coast Artillery District in the United States is enjoined by the same authority as follows:

The commander of a district in the Philippine Islands and the commander of a Coast Artillery district in the United States stand in the same general relation toward their command and toward higher authority as does a brigade commander, and have the functions and duties herein prescribed for brigade commanders with such obvious modifications as the special nature of their respective commands makes necessary.

It must not be considered that it has been possible to cover in this volume the full field of instruction of the organized military forces of the United States. As elsewhere stated, the text is confined almost exclusively to "schools" and does not attempt to enter (except in cases where some difficulty has been encountered in establishing a clear dividing line) the domain of the practical training of the troops, which after all, occupies by far the greater part of their time. A goodly volume might be written on the subject of rifle practice alone, saying nothing about covering the ground of the other practical work of the various arms of the service, such as field maneuvers, practice marches, guard duty, ordinary drills, athletic exercises, etc., etc.

The management and operation of West Point, and the Service Schools of the United States Army and instruction to officers on duty with civil institutions of learning, are prescribed in great detail in orders emanating from the War Department at Washington. In treating each of the various schools in its turn many of these orders are given in their entirety, with only such comments and additions as seem necessary.

MILITARY VALUE OF MILITARY EDUCATION.

Any study or practice of military art or science is, however, some measure of preparation for war, the last resort for the settlement of disputes between nations or factions of the same nation, by which means the weaker is either compelled to yield to the stronger, or is put to flight or slain. The stronger is not always the side possessing the greater number of men or the larger stores of war material. These advantages are frequently overcome by superior leadership, superior instruction of the combatant forces, and superior morale. The latter is frequently if not always a direct result of the former two. Soldiers who have untrained officers, and who are themselves untrained, cannot be expected to face trained troops under trained leaders with any great hopes of victory.

It is wrong both from the standpoint of truth and that of national preparedness to advocate a doctrine that all that is necessary to make an effective fighting man is to don a uniform and buckle on a sword. It is an unfortunate condition of public sentiment in the United States today which boasts and believes in the superiority of untrained American arms over the best trained troops of the world. While there is absolutely no doubt as to the quality and the quantity of material available from which to make excellent soldiers, any doctrine that teaches that an untrained American led on the field of battle by an untrained officer is a superior man to the trained officer and trooper of any other civilized nation, has nothing but mere sentiment to back it up.

MILITARY EDUCATION IN OTHER COUNTRIES.

It would require numerous volumes to describe in any detail the complete military educational system of the principal nations of the world. The necessity for such education is possibly less appreciated in the United States than in any other recognized power. This statement refers, of course, to the masses. Our Army is fully alive to the

value of a thorough military education and an efficient system whereby it may be obtained. Many foreign countries, of recognized military standing, have carried the system of military instruction and training to a point where little could be suggested in the way of improvement.

Military academies and instruction schools for officers, actual and prospective, are now an indispensable part of the military systems of the great nations of the world. Japan and China are active in their creation of new channels for the acquirement of military knowledge, and have established schools with courses of instruction and physical training embodying the best features of the United States Military Academy and the principal institutions of Europe.

THE MILITARY SCHOOLS OF ENGLAND.

The schools of England that correspond to the United States Military Academy are the Royal Military Academy, at Woolwich, and the Royal Military College, at Sandhurst.

The Royal Military Academy is maintained for the purpose of affording a special military education for candidates for commissions in the Royal Artillery and Royal Engineers. Candidates must, in the opinion of the Commander-in-Chief, be in all respects suitable to hold commissions in the army. The Commander-in-Chief is the president of the Royal Military Academy.

An independent inspection is made annually by a board of visitors, appointed by the Secretary of State for War, and reporting to him. Such visitors are not a permanent body, but are not all changed at the same time. The report of this board is presented to Parliament.

The academy is under the control of a military officer, styled Governor and Commandant, appointed by and responsible to the Secretary of State for War, through the Commander-in-Chief. The governor is assisted by a staff officer styled the Assistant Commandant and Secretary, who is responsible in his temporary absence for the charge of the establishment. This officer commands the cadet company, and has the custody of the records and correspondence of the academy, and gives the governor such assistance as he may require.

The Royal Military College is maintained for the purpose of affording a special military education to candidates for commissions in the infantry and cavalry. Candidates must, in the opinion of the Commander-in-Chief, be in all respects suitable to hold commissions in the army. The Commander-in-Chief is the president of the Royal Military College.

THE MILITARY SCHOOLS OF GERMANY.

Germany is generally recognized as the leading military nation of the world. The German system of military training has served as a model for many other nations. While all of her military methods can not be endorsed, taken as a whole the German system of military schools and military training in general is well nigh perfect and everything that is desired to meet the purposes of national defense, to say nothing about the economic efficiency this training has produced in the German people.

SCHOOLS IN PRUSSIA.

The most important military school in Germany is the "Haupt-Kadetten-Anstalt," or Upper Cadet School, at Gross-Lichterfelde. This school is supplied by the "Kadetten-hausen," or preparatory cadet schools of Goslin, Potsdam, Wahlstadt, Bensberg, Plon, Cranienstein, Karlsruhe, and Naumburg. Beginning with the lowest class of the preparatory schools, the classes are designated as Sexta or VI; Quinta, or V; Quarta, or IV; Unter-tertia, or U.III; Ober-tertia, or O.III; Unter-secunda, or U.II; Ober-secunda, or O.II; Unter-prima, or U.I; Ober-prima, or O.I. In addition there is an extra class called "Selecta."

The course of each of these classes lasts one year. The lower or preparatory schools contain the classes from VI up to and including upper-tertia; the other classes belong to the upper cadet school. Occasionally, also, depending upon the space available and the necessities of the case, some of the upper-tertia class are admitted to the upper cadet school. In the upper cadet school begins the immediate preparation for service. The classes from sexta up to and including upper-prima are assimilated in the matter of instruction to the corresponding classes of the "Realschulen" of the first degree.

SCHOOLS OF SAXONY AND BAVARIA.

Saxony and Bavaria have their own cadet corps corresponding to the preparatory and upper cadet schools of Prussia, from which appointments are made to the Saxon, or Twelfth army corps and to the corps of the Bavarian army. Saxony, however, has no artillery and engineer school, and officers of those arms have to pass through the Prussian School at Berlin. Bavaria has its own artillery and engineer school at Munich.

MILITARY SCHOOLS OF FRANCE.

To France and to French soldiers the world owes it greatest debt for the development of the military art. Napoleon alone contributed more toward its advancement than all the commanders combined who opposed him on the field of battle.

The military schools of France have done much to add to her military lustre. Among the most important schools are the Ecole Polytechnique, at Paris, and the Ecole Spéciale Militaire, at Saint Cyr, or "Saint Cyr," as it is popularly designated, just as we call the United States Military Academy "West Point."

The Polytechnique School was founded in 1794, and has been reorganized by various decrees. The object of the school is to train students for the following branches of the public service, viz.: The artillery of the army and the marine artillery; the engineer corps of the army (génie militaire); the engineer corps of the navy or naval constructors (génie maritime); the corps of naval officers; the hydrographic corps; the marine commissariat corps; the corps of highways and bridges (points et chaussées); the manufactories of the state; the engineers of the powder and salt-peter service; the mining engineers and the telegraphic lines; also for such other public services as require a profound knowledge of the mathematical, physical, and chemical sciences.

Admittance to the school is exclusively by competitive examination. After a two years' course the student may go to one of the special schools of application to any of the above mentioned services, provided he can pass successfully the final examinations and be declared acceptable for this service by the decision of a committee which draws up the classification list for the public services. Fulfillment of these conditions does not give an absolute right to enter any of the public services; admission to any service depends upon the number of vacancies existing at the time of leaving the school, upon the physical aptitude of the student, and his place on the order of merit.

The special military school of Saint Cyr dates from the time of Louis XIV. It is intended to supply officers for the infantry, the cavalry, and the marine infantry. The course of instruction lasts two years, and no scholar is allowed to remain more than three years at the school. The privilege of taking a third year to complete the course is only allowed where circumstances of exceptional gravity have compelled a student to suspend work at the school.

MILITARY SCHOOLS OF AUSTRIA.

The principal military schools in Austria are the Theresa Military Academy of Wiener-Neustadt, and the Technical Military Academy of Vienna. There are several schools which prepare for these academies, called military "Realschulen," or technical schools. Though these schools are especially intended to prepare for the military academies, there is nothing to prevent boys from getting their preparation in other "Realschulen" or in private educational establishments. The "Realschulen" generally in Austria and Germany are intended to lay the basis for a scientific education, or what in France is called "l'enseignement moderne." The classical schools are called "Gymnasia."

The course at the military real schools is seven years, of which four are passed in the "Unter-Realschule," and three years in the "Ober-Realschule." There are four of these under technical schools, situated, respectively, at Saint Polten, Guns, Eisenstadt, and Kaschau. They have in all a capacity of about 860 scholars. The superior technical school is at Weisskirchen. It has a capacity of 450 scholars.

The military technical schools also prepare for what is called "Cadetten-schulen," (Cadet schools). The graduates of the cadet schools do not enter the army as officers, but are assigned to corps and regiments, as cadets, with the actual or honorary position of non-commissioned officers. As vacancies occur they are appointed "Cadet-Officiers-Stellvertreter" (cadet officers' substitutes), in which position they exercise the functions of officers and associate with them without actually having officers' rank. After a probationary period in this position they may be nominated by the Emperor to be lieutenants of the lowest grades in their respective corps, but they must be acceptable to the officers of the unit where they have been on probation.

Armed with what is called the matura certificate, the graduate of the "Ober-Realschule" is entitled to apply for appointment to one of the military academies. In the appointments preference is given to Army officers' sons first, and then to the sons of other government officials. The standing of at least "good" is required for admission to the academies. Of the graduates with this standing about 60 per cent are promoted to the Theresa Military Academy and about 40 per cent to the Technical Military Academy.

MILITARY SCHOOLS OF ITALY.

The military schools of Italy are divided into three classes, viz.: (1) The College Militari established in Rome and Naples; (2) The

military schools for the training of officers and non-commissioned officers, of which there are three, viz.: (a) The military school of Modena, (b) The military academy of Turin, and (c) The military sanitary school of application in Florence; (3) The "scuole militari complementari" or the military schools of application proper, for officers, of which there are three, viz.: The war school (Scuola di Guerra) in Turin; (b) the school of application of artillery and engineers, in Turin; and (c) the school of cavalry, in Pinerola. There are in addition to the schools mentioned above, schools for artillery and musketry practice, a school of fencing, and batteries and platoons of instruction for training non-commissioned officers in their duties.

MILITARY SCHOOLS OF BELGIUM.

The school in Belgium which corresponds most nearly to the United States Military Academy is the Ecole Militaire, or Military Academy, at Ixelles. The object of this school is to supply officers to the following arms: (1) the infantry, (2) the cavalry, (3) the artillery, (4) the engineers. The length of the course of instruction is two years for the infantry and cavalry section, and four years for the artillery and engineer section. All students on commencing the second year's course, must contract to serve for eight years. There are no admissions to the school except by competition.

No attempt has been made to develop anything like a complete history of military educational progress. It has been in mind to cover with a fair degree of completeness the present situation of the subject in the United States as nearly as may be within the space of one volume. It is thought that to do this the organization of the various schools, the methods of administration, the supervising authority and the courses of study must be treated with liberal space. In the interest of comprehensiveness none of the entire system has been wholly ignored. It does not follow that the importance of any school should be judged by the number of pages in the chapter devoted to it. In several instances the most highly organized occupy but a few pages.

The absence in this volume of any discussion or description of education pertaining to the Naval establishment will no doubt be noted. It is sufficient to say that naval education is as comprehensive as that of the land forces, and space forbids doing justice to it. Not only this but it embraces a course of study as different from the ordinary military work as the military differs from that of many civil professions. The fact that it has not been possible to include this subject

in this treatise adds to rather than detracts from its importance, for to do justice to both subjects each must have a separate volume.

In perusing the succeeding chapters it is hoped the reader will be generous and not insist on a definition of *education* which bars everything excepting dead languages and the classics. Let the words of John Henry, Cardinal Newman, remain with us during the passage over this sinuous route:

"Education is a high word; it is preparation for knowledge, and it is the imparting of knowledge in proportion to that preparation. We require intellectual eyes to know withal, as bodily eyes for sight. We need both objects and organs intellectual; we can not gain them without setting about it; we can not gain them in our sleep, or by haphazard. The best telescope does not dispense with eyes; the printing-press or the lecture-room will assist us greatly, but we must be true to ourselves, we must be parties in the work."

CHAPTER II.

THE UNITED STATES MILITARY ACADEMY.

(WEST POINT, N. Y.)

"He stands erect; his slouch becomes a walk;
He steps right onward, martial in his air,
His form and movement."—*Cowper—The Task.*

Any system of education, to merit approval must promote physical development, patriotism, good morals, and love of law and order. The system best calculated to contribute to good citizenship is that which produces harmoniously and simultaneously healthy mental, physical and moral development. The influence of a military education in the direction of this end is readily apparent. The value of it does not depend so much on the curriculum as on the methods pursued.

A review of the successful men of all countries will reveal the abnormal proportion who have enjoyed military education, training and experience. In the United States it is impossible to mention any important field of activity into which West Point graduates have not entered and achieved success and greatness, saying nothing of hundreds of other conspicuous for their accomplishments who received their military education and training through other sources.

The characteristics of self-reliance and self-restraint, derived from military education and training, are the potent attributes of good citizenship and the basic principles of success, combining with mental development the military methods of physical and moral improvement.

No more fallacious doctrine was ever preached than that recently advanced by an illy advised but possibly earnest propaganda in which military education and training are represented as destroying individuality, independence and self-reliance. No better argument is necessary to overcome any such erroneous teaching than simply to point to a large number of the world's most noteworthy accomplishments, which have been the labor of men who have received their training in military schools, or the more severe school of the Army. The most recent of these great works, the greatest engineering feat of all ages, is the Panama Canal. The directing force behind this unprecedented undertaking was trained in the strictest school of them all—West Point—as were also many of the men, who, though under the directing head, have themselves performed works, which, if classed as a separate enterprise would stand out as masterpieces of the engineer's science.

Military men have not confined their efforts to material accomplishments alone; their work may be found in all lines of human activity and is of a quality comparing favorably with the efforts of those whose sole occupation has been that of peace and its fields of labor.

The military system of education, whether applied to our civil institutions of learning, or to West Point, is calculated to develop self-reliance, a manly and independent nature, personal neatness, etiquette, polished and refined manners, a wholesome respect for law and order, and the highest type of the American citizen—the soldier-citizen, never encouraging war but ever ready if need be to defend home and country.

The United States Military Academy at West Point, New York, is the real basis of our military educational system. Not only do its graduates comprise a large part of the officers of our standing Army, but the school itself serves as a model for all other schools maintaining a course in military instruction. West Point has furnished officers in every war in which we have engaged, with the exception of the War for Independence. The Academy owes its birth to the great need for trained officers so plainly shown during the trying days of this war. General George Washington, upon whom we have so affectionately bestowed the title of "The Father of His Country," the strong guiding spirit of the struggle for independence, was thoroughly in sympathy with the plan for establishing this training school for officers. In a letter to Alexander Hamilton, dated at his home at Mount Vernon, December 12, 1799, two days before his death, he gives his unqualified encouragement to the project. General Washington said:

"I have duly received your letter of the 28th ultimo, enclosing a copy of what you had written to the Secretary of War, on the subject of a Military Academy.

"The establishment of an Institution of this kind, upon a respectable and extensive basis, has ever been considered by me as an object of primary importance to this country; and while I was in the Chair of Government, I omitted no proper opportunity of recommending it, in my public speeches and otherways, to the attention of the Legislature. But I never undertook to go into a detail of the organization of such an academy; leaving this task to others whose pursuits in the paths of science, and attention to the arrangements of such institutions, had better qualified them for the execution of it. For the same reason I must now decline making any observations on the details of your plan; and as it has already been submitted to the Secretary of War, through whom it would naturally be laid before Congress, it might be too late for alterations if any should be suggested.

"I sincerely hope that the subject will meet with due attention, and that the reasons for its establishment which you have so clearly pointed out in your letter to the Secretary, will prevail upon the Legislature to place it upon a permanent and respectable footing."

It seems unnecessary to give any extensive endorsement of the work of our National Academy, but a few instances of commendatory

character could scarcely be called out of place in the introductory part of a chapter on an institution which has played so prominent a part in the history of our country, particularly when the commendations are from those who have been witnesses of the character of work performed by men trained in this school.

President Andrew Jackson, the hero of New Orleans, our most decisive victory in our second war with England, in his first message to Congress in December, 1829, gives his most unqualified approval of West Point as is evidenced in the following extract from his message:

"I recommend to your fostering care, as one of our safest means of national defense, the Military Academy. This institution has already exercised the happiest influence upon the moral and intellectual character of our Army; and such of the graduates as from various causes may not pursue the profession of arms will be scarcely less useful as citizens. Their knowledge of the military art will be advantageously employed in the militia service, and in a measure secure to that class of troops the advantages which in this respect belong to standing armies."

Our most flawless war from a tactical and strategical point of view was our war with Mexico. It gave the first real test of the efficiency and efficacy of our National Military Academy. General Scott, one of the great leaders of this conflict, has given expression of his appreciation of the education at West Point in the following language:

"I give it as my fixed opinion, that but for our graduated cadets, the war between the United States and Mexico might, and probably would, have lasted some four or five years, with, in its first half, more defeats than victories falling to our share; whereas, in less than two campaigns, we conquered a great country and a peace, without the loss of a single battle or skirmish."

The part played in our war between the States—the Civil War—by the officers trained at West Point is well known to every school boy. General W. T. Sherman, one of the great actors in this national tragedy, himself a graduate, brings out the democratic feature of West Point, a phase of the Academy that has been largely overlooked by many of our citizens not excepting some instances among the very class who are responsible for the appointments—members of Congress.

"The education and manly training imparted to young men at West Point has repaid the United States a thousand times its cost, and more than verified the predictions of General Washington. Every cadet at West Point is an appointee of a member of Congress, every member having a cadet of his own nomination there * * * The corps of cadets is therefore a youthful counterpart of our National House of Representatives. The same laws, the same regulations, the same instruction books, clothing and food are common to all, and a more democratic body never existed on earth than is the corps of cadets."

From ex-President Roosevelt comes the following tribute:

"This institution has completed its first hundred years of life. During that century no other educational institution in the land has contributed as many names as West Point has contributed to the honor-roll of the nation's greatest citizens."

Elihu Root, when Secretary of War, shortly after the close of the war with Spain, in his annual report, dated June 30, 1899, gave expression to a highly complimentary appreciation of the graduates of the Academy who took part in that war, in the following language:

"The foregoing considerations naturally bring to mind the Military Academy at West Point. I believe that the great service which it has rendered the country was never more conspicuous than it has been during the past two years. The faithful and efficient services of its graduates since the declaration of war with Spain have more than repaid the cost of the institution since its foundation. They have been too few in number and most heavily burdened."

There is scarcely a limit to the testimonials that one might quote appreciative of the value not only of West Point but of military education and training in general. It is believed the above is sufficient for the purposes herein contemplated.

A brief history of the National Academy is both interesting and instructive, particularly so when viewed from the standpoint of the causes which lead to its establishment. The credit for the following historical sketch must be given to the compilers of the annual register of the Academy.

HISTORICAL SKETCH.

The United States Military Academy is a school for the practical and theoretical training of cadets for the military service. Upon completing its course satisfactorily, cadets are eligible for promotion and commission as second lieutenants in any arm or corps of the Army the duties of which they have been judged competent to perform.

The supervision and charge of the Academy are in the War Department under such officer or officers as the Secretary of War may assign to that duty (section 1331, Revised Statutes). In conformity with the provisions of this section, the Chief of Staff has been, by direction of the Secretary, charged with the supervision of matters in the War Department pertaining to the Academy.

The occupation of West Point as a military post took place on January 20, 1778, and has been continuous since that date. The earliest proposal for a military school for the United States was that of Brigadier General Henry Knox, Chief of Artillery (May, 1776). His plans were seconded by Colonel Alexander Hamilton and approved by General Washington, though they were not adopted in the form suggested before 1802, other counsels having temporarily prevailed.

On October 1, 1776, Congress passed a resolution appointing a committee to prepare a plan for "A Military Academy at the Army." The result was the resolution of June 20, 1777, providing for a Corps of Invalids "to serve as a military school for young gentlemen previous to their being appointed to marching regiments." The Invalid Corps was organized in July, 1777, and in 1781, at the request of Washington, was marched from Philadelphia to form part of the garrison at West Point, where an engineer school, a

laboratory, and a library had already been established in three separate buildings.

On March 30, 1779, the Board of War adopted regulations for the Corps of Engineers and for the Sappers and Miners. These were promulgated in orders, July 30, 1779, by General Washington and provided for a plan of instruction to be carried into effect after approval by the Board and by the General-in-Chief. The plan contemplated lectures, by engineer officers, on fortification, mining, reconnaissance, encampments and the like. Practical experiments in gunnery were conducted at West Point as early as February, 1780. In 1783, after the cessation of hostilities, Washington, having been called upon for his views as to the peace establishment, laid the matter of a Military Academy before his officers at Newburg. He referred to it again in his message on December 3, 1793. The law of May 9, 1794, authorized the organization of a Corps of Artillerists and Engineers with two cadets to a company, thus creating the new grade of "cadet" in the American Army. A school for the Artillerists and Engineers, and for the cadets attached to the Corps, was established, on the recommendation of Washington, by order, at West Point in 1794. The destruction of its buildings by fire, in 1796, caused its suspension. In July, 1801, the Secretary of War directed that all the cadets of the Corps of Artillerists should report at West Point for instruction, and in September a school was opened with four Army officers and a civilian as administrators and instructors.

An Act of Congress approved March 16, 1802, authorized the President to organize and establish a Corps of Engineers to consist of five officers and ten cadets, and provided that it should be stationed at West Point, in the State of New York, and should constitute a Military Academy. The Academy with ten cadets present, was formally opened July 4, the year of the Act.

Acts of Congress, in 1802 and 1808, authorized 40 cadets from the Artillery, 100 from the Infantry, 16 from the Dragoons, and 20 from the Riflemen; few of these were appointed, and no provision was made for them at the Academy. In 1810, the Academy was deprived of nearly all means of instruction, and officers and cadets had difficulty in obtaining their pay. During most of the year 1811, and a part of 1812, although war was imminent, academic instruction was practically abandoned. In March, 1812, the Academy was without a single instructor. Up to and including this time, 88 cadets had been graduated; they had entered without mental or physical examination, at all ages from 12 to 34, and at various times during the year.

By Act of Congress of April 29, 1812, the Academy was reorganized. The provisions of this Act have furnished the general principles upon which the Military Academy has since been conducted and controlled; a more adequate corps of professors was authorized; a maximum of 250 cadets was fixed; and the age and the mental requisites for admission were prescribed.

In 1817, under the provisions of the Act of 1812, and the able superintendency of Major Sylvanus Thayer, Corps of Engineers, the present era in the Academy's history opened.

Until 1843, a prescribed residence was not a legal qualification for appointment, but the selection of one cadet from each Congressional district had grown to be customary. In this year the custom became the law, Congress prescribing that the Corps of Cadets should consist of one from each Congressional district, one from each Territory, one from the District of Columbia, and ten from the United States at large, to be appointed by the President.

By Acts of Congress approved June 6, 1900, June 28, 1902, March 3, 1903, May 28, 1908, and August 9, 1912, the Corps of Cadets as now constituted consists of one from each Congressional district, one from each Territory, two from the District of Columbia, one from Porto Rico, two from each State at large, and forty from the United States at large, all to be appointed by the President. Those cadets appointed from States or Territories must be actual residents of the Congressional or Territorial districts, or of the District of Columbia, or of the States, respectively, from which they are appointed.* Four Filipinos, one for each class, are authorized to receive instruction as cadets, to be eligible on graduation only to commissions in the

*Under Act of Congress approved April 19, 1910, the law, however, provides that for six years from July 1, 1910, whenever any cadet shall have finished three years of his course at the Academy his successor may be admitted.

Philippine Scouts. Under these Acts, and under the apportionment of Members of Congress according to the 13th Census, the maximum number of cadets is 580.

The total number of graduates from 1802 to 1913 inclusive is 5205.

The working organization of the Academy at West Point consists of a

Superintendent and Commandant,
Military Staff,
Departments of Instruction,
Corps of Cadets, and
Detachment of troops assigned for duty to that post.

SUPERINTENDENT AND COMMANDANT.

The Superintendent and Commandant is always an officer of the Army, usually of the rank of Colonel, detailed by order of the President of the United States for this duty.

MILITARY STAFF.

The military staff consists of an Adjutant of the Military Academy and of the Post, who acts as secretary to the Academic Board.

A Quartermaster of the Military Academy and of the Post.

A Treasurer of the Military Academy, and Quartermaster and Commissary for the Battalion of Cadets.

A Medical Officer with rank of surgeon.

DEPARTMENTS OF INSTRUCTION.

Professors whose services at the Academy, as Professor, exceed ten years, have the rank, pay and allowances of a colonel, and all other professors have the rank, pay and allowances of a lieutenant-colonel of the Army. The academic departments are arranged in the order in which they were created by law. They are:

Department of Tactics.
Department of Civil and Military Engineering.
Department of Natural and Experimental Philosophy.
Department of Mathematics.
Department of Chemistry, Mineralogy and Geology.
Department of Drawing.
Department of Modern Languages.
Department of Law.

Department of Practical Military Engineering, Military Signaling and Telegraphy.
Department of Ordnance and Gunnery.
Department of Military Hygiene.
Department of English and History.

CADET CORPS ORGANIZATION.

For instruction in infantry drill regulations and in military police and discipline, the Corps of Cadets is organized into two battalions, under the Commandant of Cadets, assisted by two battalion commanders (Army officers), each company being commanded by an officer of the Army. The cadet officers and noncommissioned officers are selected from those cadets who have been most studious, soldierlike in the performance of their duties, and most exemplary in their general deportment. In general, the cadet captains and lieutenants are taken from the first class, the sergeants from the second class, and the corporals from the third class.

There is detailed by order of the War Department an officer of the Army usually of the rank of major who acts as commandant of cadets.

CLASSIFICATION OF CADETS.

The Cadets are arranged in four distinct classes, corresponding with the four years of study. Cadets employed on the first year's course constitute the *Fourth Class;* those on the second year's course the *Third Class;* those on the third year's course the *Second Class;* and those on the fourth year's course the *First Class.*

The academic year commences on the 1st of July. On or before that date the result of the examination held in the preceding month is announced and Cadets are advanced from one class to another. At no other time is a Cadet advanced from one class to another, unless prevented by sickness, or authorized absence, from attending the aforesaid examination; in such a case a special examination is granted; but in no case is a Cadet advanced from one class to another without having satisfied the Academic Board of his proficiency in each branch of study pursued by his class.

The weight for conduct, based upon the number of demerits received by a cadet each year, is

First class year	125
Second class year	100

Third class year 75
Fourth class year 50

The final count in conduct for the graduating merit roll is 200. The proportional parts are determined by taking two-thirds of the sum of the proportional parts for the first, second and third class years.

The following information relative to the appointment and admission of cadets is published by the War Department. A sample set of questions asked at an admission examination will be found in Appendix I of this volume:

APPOINTMENTS.

How Made.—Each Congressional District and Territory—and also Porto Rico—is entitled to have one cadet at the Academy. Each State is also entitled to have two cadets from the State at large; two are allowed from the District of Columbia and forty are allowed from the United States at large. The law, however, provides that for six years from July 1, 1910, whenever any cadet shall have finished three years of his course at the Academy his successor may be admitted. The appointment from a Congressional District is made upon the recommendation of the Representative in Congress from that District, and those from a State at large upon the recommendations of the Senators of the State. Similarly the appointment from a Territory is made upon the recommendation of the Delegate in Congress. The appointments from the District of Columbia are made on the recommendation of the Commissioners of the District. Each person appointed must be an actual resident of the State, District or Territory from which the appointment is made.

The appointments from the United States at large are made by the President of the United States upon his own selection. The cadet from Porto Rico, who must be a native of that island, is appointed by the President on the recommendation of the Resident Commissioner.

The Secretary of War is authorized to permit not exceeding four Filipinos, to be designated, one for each class, by the Philippine Commission, to receive instruction at the United States Military Academy at West Point; *Provided*, that the Filipinos undergoing instruction, shall receive the same pay, allowances, and emoluments as are authorized by law for cadets at the Military Academy appointed from the United States, to be paid out of the same appropriations: *And provided further*, That said Filipinos undergoing instruction on graduation shall be eligible only to commissions in the Philippine Scouts. And the provisions of section 1321, Revised Statutes, are modified in the case of the Filipinos undergoing instruction, so as to require them to engage to serve for eight years, unless sooner discharged, in the Philippine Scouts.

Date of Appointments.—Appointments are required by law to be made *one year in advance* of the date of admission, except in cases where, by reason of death or other cause, a vacancy occurs which cannot be provided for by such appointment in advance. These vacancies are filled in time for the next examination.

Candidates.—For each vacancy *three candidates* should be nominated, one of the candidates to be named as *principal* and the others as *alternates*. The alternate making the highest proficient average will be entitled to admission in case of the failure of the principal.

Each candidate will receive from the War Department a letter of appointment, and he must appear for examination at the time and place designated therein.[1]

Fitness for admission will be determined as prescribed in the Regulations United States Military Academy.

[1] The Board before which a candidate is directed to appear will be, without exception, the one convened at the place nearest or most convenient to his home, or to the school at which he is in regular attendance at the time of appointment.

EXAMINATION AND ADMISSION OF CANDIDATES.

The following are extracts from the Regulations of the Military Academy relating to the examination of candidates for admission and will be strictly adhered to:

On the last Tuesday in March of each year candidates selected for appointment (except the Filipino candidates) shall appear for mental and physical examination before Boards of Army officers to be convened at such places as the War Department may designate. The Filipino candidates selected for appointment, unless otherwise notified by the War Department, shall appear for mental and physical examination on the second Tuesday in January of each year before a Board of Army officers to be convened at such place in the Philippine Islands as the Commanding General of the Philippines Division may designate. Candidates who pass will be admitted to the Academy without further examination upon reporting in person to the Superintendent before 12 o'clock noon, on the 14th day of June following the examination, or 15th if the 14th falls on Sunday.

Each candidate before admission to the academy, must show by examination as prescribed in the preceding paragraph, that he is well versed in algebra, to include quadratic equations and progressions, plane geometry, English grammar, composition and literature, descriptive and physical geography, and general and United States history, as explained in the circulars of notification. No rejected candidate shall be re-examined, except upon recommendation of the Academic Board.

Engagement to serve.—Immediately after reporting to the Superintendent for admission and before receiving their warrants of appointment candidates are required to sign in the presence of the Superintendent, or of some officer deputed by him, engagements for service in the following form:

I, ——— ———, of the State (or Territory) of ———, aged ——— years, ——— months, do hereby engage (with the consent of my parent or guardian) that from the date of my admission as a cadet of the United States Military Academy I will serve in the Army of the United States for eight years unless sooner discharged by competent authority.

In the presence of ——— ———.

In the case of the Filipino cadets the engagement shall be made to serve in the Philippine Scouts. (See sec. 1321, R. S.)

Oath of allegiance.—"Each cadet shall, previous to his admission to the academy, take and subscribe an oath or affirmation in the following form:

" 'I——— ———, do solemnly swear that I will support the Constitution of the United States and bear true allegiance to the National Government; that I will maintain and defend the sovereignty of the United States paramount to any and all allegiance, sovereignty, or fealty I may owe to any State, county, or country whatsoever, and that I will at all times obey the legal orders of my superior officers and the rules and articles governing the Armies of the United States.' (Sec. 1320, R. S.)

"Sworn to and subscribed at ——— this ——— day of ———, nineteen hundred and ———, before me."

Qualifications.—No candidate shall be admitted who is under seventeen, or over twenty-two years of age, or less than five feet four inches in height at the age of seventeen, or five feet five inches in height at the age of eighteen and upward, or who is deformed, or afflicted with any disease or infirmity which would render him unfit for the military service, or who has, at the time of presenting himself, any disorder of an infectious or immoral character. Candidates must be unmarried.

Each candidate must on reporting at West Point present a certificate showing successful vaccination within one year; or a certificate of two vaccinations, made at least a month apart, within three months.

NOTE.—Candidates are eligible for admission from the day they are seventeen until the day they become twenty-two years of age, on which latter day they are not eligible.

Each candidate designated as principal or alternate for appointment as cadet at the Military Academy should ascertain as soon as practicable whether or not he has any physical defect that would disqualify him for admission to the Academy or any that should be corrected by treatment previous to presenting himself for examination. For this purpose he should immediately cause himself to be examined by his family physician, and, if

he desires, also by an Army Surgeon at the nearest military post. Such an examination should enable the candidate to decide whether to devote the time and possible expense which may be necessary for preparation for the entrance examination or to relinquish his appointment.

It should be understood that the informal examination herein recommended is solely for the convenience and benefit of the candidate himself, and can in no manner affect the decision of the Academic and Medical Examining Boards.

CHARACTER OF EXAMINATIONS.

PHYSICAL EXAMINATION.

Upon the completion of the mental examination, all candidates will be thoroughly examined physically by the medical officers of the board, under the following instructions prepared by the Surgeon General of the Army:

Hearing must be normal in both ears.

Vision, as determined by the official test types, must not fall below 20/40 in either eye, and not below 20/20 unless the defect is a simple refractive error not hyperopia, is not due to ocular disease, and is entirely corrected by proper glasses.

In the record of all examinations the acuity of vision without glasses, and also with glasses when the acuity is less than 20/20, will be given for each eye separately; in the latter case the correction will also be noted.

Hyperopia requiring any spherical correction, anisometropia, squint, or muscular insufficiency, if marked, are causes for rejection.

Color blindness, red, green, or violet, is cause for rejection.

Teeth.—A candidate must have at least four serviceable double (bicuspid or molar) teeth, two above and two below, and so opposed as to serve the purpose of mastication. Loss of many teeth or teeth generally unsound is also cause for rejection. In the latter case, however, a candidate may be accepted subject to the condition of having cavities filled and mouth put in good sanitary condition by the date set for his arrival at West Point.

The following are causes for disqualification if found to exist to such a degree as would immediately or at no very distant period impair the efficiency of the candidate:

1.—Feeble constitution; unsound health from whatever cause; indications of former disease, glandular swellings, or other symptoms of scrofula.
2.—Chronic cutaneous affections, especially of the scalp.
3.—Severe injuries of the bones of the head; convulsions.
4.—Impaired vision, from whatever cause; inflammatory affections of the eyelids; immobility or irregularity of the iris; fistula lachrymalis, &c., &c.
5.—Deafness; copious discharge from the ears.
6.—Impediment of speech.
7.—Want of due capacity of the chest, and any other indication of a liability to a pulmonic disease.
8.—Impaired or inadequate efficiency of one or both of the superior extremities on account of fractures, especially of the clavicle, contraction of a joint, deformity, &c.
9.—An unusual excurvature or incurvature of the spine.
10.—Hernia.
11.—A varicose state of the veins of the scrotum or spermatic cord (when large), hydrocele, hemorrhoids, fistulas.
12.—Impaired or inadequate efficiency of one or both of the inferior extremities on account of varicose veins, fractures, malformation (flat feet, &c.), lameness, contraction, unequal length, bunions, overlying or supernumerary toes, &c., &c.
13.—Ulcers, or unsound cicatrices of ulcers likely to break out afresh.

The requirements of the following tables of physical proportions are *minimum for growing youths* and are for the guidance of medical officers in connection with the other data of the examination, a consideration of all of which should determine the candidate's physical eligibility. Mere fulfillment of the requirements of the standard tables does not determine eligibility, while on the other hand no departure below the standard should be allowed unless upon the unanimous recommendation of the medical examining board for excellent reasons clearly stated in each case.

The physical requirements should be those of the age at the birthday nearest the time of the examination. Fractions greater than ½ inch will be considered as an additional inch of height but candidates 17 years old must be at least 64 inches, and those 18 years and upward at least 65 inches in height.

Table of physical proportion for height, weight, and chest measurement.

Age.	Height, inches.	Weight, pounds.	Chest measurement—expiration, inches.	Chest mobility, inches.	Age.	Height, inches.	Weight, pounds.	Chest measurement—expiration, inches.	Chest mobility, inches.
17 yrs.	64	110	29	2	18 yrs.	65	117	30¼	2
	65	112	29¼	2		66	119	30½	2
	66	114	29½	2		67	121	30¾	2
	67	116	29¾	2		68	124	31	2½
	68	119	30	2½		69	127	31¼	2½
	69	122	30¼	2½		70	130	31½	2½
	70	125	30½	2½		71	133	31¾	2½
	71	128	30¾	2½		72	136	32	3
19 yrs.	65	121	30¾	2	20 yrs.	65	122	31	2
	66	123	31	2		66	124	31¼	2
	67	125	31¼	2		67	126	31½	2
	68	129	31½	2½		68	130	31¾	2½
	69	133	31¾	2½		69	134	32	2½
	70	137	32	2½		70	138	32¼	2½
	71	141	32¼	2½		71	142	32½	2½
	72	145	32½	3		72	146	32¾	3
	73	149	32¾	3		73	150	33	3
						74	154	33¼	3½
21 yrs.	65	123	31¼	2	22 yrs.	65	125	31½	2
	66	125	31½	2		66	127	31¾	2
	67	127	31¾	2		67	129	32	2
	68	132	32	2½		68	134	32¼	2½
	69	137	32¼	2½		69	139	32½	2½
	70	142	32½	2½		70	144	32¾	2½
	71	147	32¾	2½		71	149	33	2½
	72	152	33	3		72	154	33¼	3
	73	157	33¼	3		73	159	33½	3
	74	162	33½	3½		74	164	33¾	3½
	75	167	33¾	3½		75	169	34	3½
						76	174	34¼	4

The following order of the War Department dated January 23rd, 1914, greatly modifies the entrance requirements in that it provides a means of entering without examination where certain other conditions are complied with:

A candidate for admission to the United States Military Academy from a State, District, or Territory may be excused from the mental examination for admission upon one of the following conditions:

1. That he present a properly attested certificate that he is a regularly enrolled student in good standing without condition in any university, college, or technological school accredited by the United States Military Academy, provided that the entrance requirements for the course he is pursuing in such institution include proficiency in the subjects of mathematics A_1 (algebra to quadratics), A_2 (algebra, quadratics and beyond), and C (plane

geometry); English A (reading and practice) and B (study and practice), as outlined by the College Entrance Examination Board.

2. That he present a properly attested certificate of graduation from a preparatory school or public high school which is on the accredited list of one of the institutions referred to in paragraph 1 of this order, provided that he is thus certified to have established proficiency in mathematics A_1, A_2, and C, and English A and B, as outlined by the College Entrance Examination Board.

3. That he present a properly attested certificate from the College Entrance Examination Board that he has passed 14 units of its examinations, including mathematics A_1, A_2, and C, English A and B, and history A (ancient history) and D (American history and civil government).

PHYSICAL EXAMINATION.

All cadets are examined physically in May of each year, and those found physically disqualified to continue with the course or, in case of the first class, for commission in the Army, are discharged.

VACATIONS AND LEAVES OF ABSENCE.

Academic duties are suspended from the completion of the June examinations until the end of August. During this period cadets live in camp and are engaged in military duties and exercises and in receiving practical instruction in military and other subjects. Academic duties are also suspended from December 24th until January 2nd, except for those undergoing examination. All duties and exercises, as far as practicable, are suspended on New Year's Day, February 22nd, May 30th, July 4th, Thanksgiving Day and Christmas Day.

Cadets of the first, second and third classes not undergoing examination are allowed short leaves at Christmas, if their conduct during the preceding six months has been satisfactory. Excepting these short leaves for good conduct, cadets are allowed but one leave of absence during the four years' course. This leave is granted to those cadets who have successfully completed the third class course of study, and extends from the middle of June to the 28th of August.

PAY OF CADETS.

The pay of a cadet is $600 per year and one ration per day, or commutation therefor at thirty cents per day. The total is $709.50, to commence with his admission to the Academy. The actual and necessary traveling expenses of candidates from their homes to the Military Academy are credited to their accounts *after* their admission as cadets.

No cadet is permitted to receive money, or any other supplies, from his parents, or from any person whomsoever, without the sanction of the Superintendent. A *most rigid* observance of this regulation is urged upon all parents and guardians, as its violations would make distinctions between cadets which it is the especial desire to avoid; the pay of a cadet is sufficient, with proper economy, for his support.

Candidates are authorized to bring with them the following articles: Hair brush, nail brush, tooth brush, shoe brush, comb, eight drawers (summer), twelve handkerchiefs (white), four night shirts or pajamas, eight socks (black cotton), six bath towels, six face towels, one trunk, eight undershirts (summer), whisk broom, shaving mug, winter underwear, and athletic uniforms, shoes and goods.

Cadets are required to wear the prescribed uniform. All articles of their uniform are of a designated pattern, and are sold to cadets at West Point at regulated prices.

DEPOSIT PRIOR TO ADMISSION.

Immediately after admission candidates must be provided with an outfit of uniform, &c., the cost of which is about $160. This sum, or at least $100 thereof, *must be deposited with the Treasurer of the Academy before the candidate is admitted.* It is best for the candidate to take with him no more money than he needs for traveling expenses and for his parents to send

the required deposit by draft, payable to the Treasurer, U. S. Military Academy. The deposit is credited at once to the cadet's account. Upon graduation a cadet who has exercised proper economy will have sufficient money to his credit with the Treasurer of the Academy to purchase his uniform and equipment as an officer.

ACADEMIC DUTIES.

There are two terms of academic instruction; September 1-December 23, and January 2-June 4. A semi-annual examination is held December 26-31, and an annual examination June 5-12. At the December examination cadets, who are found to be proficient in subjects they have completed during the preceding term are arranged according to merit in each subject. At the June examination they are similarly arranged and they are also assigned general standing in the class as determined by their standings in the various subjects. When a subject of study is completed during a term an examination concluding the work in that subject is sometimes held. Cadets deficient in studies at any examination are discharged from the Academy unless for special reasons the Academic Board recommends otherwise. Cadets exceeding at any time the maximum number of demerits allowed for six months are reported to the Academic Board as deficient in conduct.

PROMOTION AFTER GRADUATION.

The attention of applicants and candidates is called to the following provisions of an Act of Congress approved May 17, 1886, to regulate the promotion of graduates of the United States Military Academy:—

"That when any cadet of the United States Military Academy has gone through all its classes and received a regular diploma from the Academic Staff, he may be promoted and commissioned as a second lieutenant in any arm or corps of the Army in which there may be a vacancy and the duties of which he may have been judged competent to perform; and in case there shall not at the time be a vacancy in such arm or corps, he may, at the discretion of the President, be promoted and commissioned in it as an additional second lieutenant, with the usual pay and allowances of a second lieutenant, until a vacancy shall happen."

PROGRAM OF THE COURSE OF INSTRUCTION.

Immediately following is shown the program of the course of instruction adopted by the Academic Board May 2, 1912, and approved by the War Department May 4, 1912. The program took effect September 1, 1912.

THE ACADEMIC CALENDAR.

First term, Sept. 1-Dec. 23, embraces 95 a. m. and 80 p. m. periods.
Second term, Jan. 2-June 4, embraces 130 a. m. and 109 p. m. periods.
Semi-annual examination, Dec. 26-31.
Annual examination, June 5-12.
a. m. periods extend from 7:55 a. m. to 12:30 p. m., except Sundays.
p. m. periods extend from 1:45 to 3:45, except Saturdays and Sundays.

HOURS OF ATTENDANCE.

7:55 to 9:20 a. m.; 9:20 to 10:45 a. m.; 10:30 to 11:30 a. m.; 11:30 a. m. to 12:30 p. m.

Dinner assembly 12:40 p. m. 1:45 to 2:45 p. m.; 2:45 to 3:45 p. m.

In Philosophy and Chemistry the following arrangement will govern:—Philosophy, 7:55 to 9:20; 10:30 to 11:55. Chemistry, 7:55 to 9:00; 10:30 to 11:35.

For laboratory work Second Class sections attending at 7:55 may be held until 9:55, and sections attending at 10:30 may be held to 12:30.

Division into A and B sections will be observed in First, Second and Third Classes.

Class.	SUBJECTS.	TIME.	Allotment of Periods.		
			Time in minutes.	Number in year.	Total number.
Fourth..	Mathematics	a. m. daily except alternating whole class last 66 days with surveying. During alternation Tuesday, Thursday and Saturday to mathematics	85	192	...
	Surveying	a. m. alternating whole class with mathematics last 66 days. During alternation Monday, Wednesday and Friday to surveying	85	...	...
		May 1 to June 4, attendance 7:55 a. m. to 12:00 noon. Theoretical examination immediately after completion of theoretical course	245	33	33
	Drill regulations....	a. m. Saturdays during September, October, November, March, April and May	60	26	...
	English and history.	p. m. daily	60	189	...
	do.....	a. m. Saturdays for lectures in December, January and February.	60	10	199
	Gymnasium	a. m. daily except Saturdays Oct. 1-April 30	45	144	...
		p. m. daily except Saturdays May 1-June 4.....	60 45	10 15	... ...
Third...	Mathematics	a. m. daily	85	225	417
	French	a. m. daily except last two Mondays, Wednesdays and Fridays in September	60	219	219
	Drawing	p. m. ½ class daily.....	120	94	...
	Hygiene	p. m. ½ class daily alternating with drawing for 26 days beginning September 1	60	13	...
	do.....	a. m. whole class last two Mondays, Wednesdays and Fridays in September alternating with French (6 lectures)	60	6	19
	Drill regulations....	p. m. ½ class daily alternating with drawing for 24 days after hygiene	60	12	...
	Riding	p. m. ½ class alternating with drawing after drill regulations to March 15	60	42	...
	Gymnasium	p. m. after drawing (after 3:45) Nov. 1-Mar. 15, except Wednesdays	45	35	...

Class.	SUBJECTS.	TIME.	Allotment of Periods. Time in minutes.	Number in year.	Total number.
Second..	Philosophy	a. m. daily except alternating ½ class with drill regulations, Monday to Thursday, inclusive, for two weeks beginning first Monday in April	85	221	221
	Chemistry	a. m. daily except alternating ½ class with drill regulations, Monday to Thursday, inclusive, for three weeks beginning third Monday in April.....	65	219	219
	Drawing	p. m. ½ class daily.....	120	94	188
	Drill regulations....	p. m. alternating with drawing for 24 days beginning Sept. 1.....	60	12	...
	do.....	a. m. ½ class alternating with philosophy and chemistry as above	60	10	60
	Spanish	p. m. ½ class alternating with drawing after drill regulations (September)	60	82	...
	Riding	p. m. alternating with gymnasium after 3:45, Nov. 1-Mar. 15, except Wednesday	60	35	...
	Gymnasium	p. m. alternating with riding after 3:45, Nov. 1-Mar. 15, except Wednesday	45	35	...
First...	Engineering	a. m. daily (½ class only on Saturday for 8 Saturdays after April 1)	85	221	221
	Law	a. m. ½ class daily alternating with riding, and with engineering first hour for 8 Saturdays after April 1	60	112	112
	Hippology	a. m. alternating with law 24 days beginning Sept. 1.....	60	12	12
	Riding	a. m. ½ class alternating with law after hippology			
	do.....	Entire class Saturdays after 11:00 a. m. for 8 Saturdays after April 1	60	104	181
	Ordnance and gunnery	p. m. ½ class alternating with Spanish	60	94	...
	do.....	p. m. 10 periods for shop work, after 2:45, Nov. 1-Mar. 15.....	...	10	104
	Spanish	p. m. alternating with ordnance and gunnery	60	94	176
	Gymnasium	p. m. ½ class after 2:45 Nov. 1-Mar. 15, except when attending ordnance shop work.....	45	33	249

DEPARTMENT OF TACTICS.

ALL CLASSES.

New cadets, upon reporting for duty, are given Infantry recruit instruction with gymnastic and calisthenic exercises, until they join the battalion.

Practical instruction is given during the summer encampment, and from September 1st to November 1st, and from March 15th to June 1st, in infantry,

artillery and cavalry drill regulations, in target practice with the rifle, revolver, mountain gun and field gun, and in Military Engineering.

During the summer encampment, cadets of the third and fourth classes are also taught swimming and dancing, and those of the first class, the service of seacoast artillery and submarine defense at fortifications. The first, third and fourth classes participate in exercises in minor tactics, practice marches, problems and practical field work, in which the employment of all arms is exemplified.

Practical instruction in fencing and gymnastic exercises and in boxing and wrestling is given to the fourth class from October 1st to June 1st, and to the other classes from November 1st to March 15th.

Instruction in riding is given to the first class during the encampment and from September 1st to June 1st, excepting the month of February; to the second and third classes, from November 1st to March 15th and also to the third class during the summer encampment. Instruction with English pad saddles is given to the first class, and in polo to the first and second classes.

During the academic season recitations in hippology are held for the first class and in drill regulations for the second, third and fourth classes. Instruction is also given in writing orders and in solving problems involving the disposition of small forces.

Previous to graduation lectures are given the first class upon uniforms and equipments, and upon etiquette and customs of the service.

TEXT BOOKS.

Infantry Drill Regulations. U. S. Army.
Field Artillery Regulations. U. S. Army.
Mountain Artillery Drill Regulations. U. S. Army.
Coast Artillery Drill Regulations. U. S. Army.
Cavalry Drill Regulations. U. S. Army.
Elements of Hippology. Marshall.

BOOKS OF REFERENCE.

U. S. Army Regulations.
Field Service Regulations. U. S. Army.
Provisional Small Arms Firing Manual. U. S. Army.
Drill Regulations for Machine Gun, Infantry.
Drill Regulations for Machine Gun, Cavalry.
Regulations, U. S. M. A.
Manual of Guard Duty. U. S. Army.
Manual of Gymnastic Exercises. Koehler.
Regulations for Field Maneuvers, U. S. Army.
Manual of Instruction in Pack Transportation.

ISSUED TO FIRST CLASS BEFORE GRADUATION.

U. S. Army Regulations.
Manual of the Subsistence Department, U. S. A.
Manual of the Quartermaster's Department, U. S. A.
Paymaster's Manual. U. S. A.
Regulations for the Uniform for the U. S. A.
Drill Regulations of the Hospital Corps. U. S. A.
Manual of Courts-Martial. U. S. A.
Army Register. U. S.
Regulations for the Post Exchange.
Manual of Medical Department. U. S. A.

DEPARTMENT OF CIVIL AND MILITARY ENGINEERING.

FIRST CLASS.

The course in civil and military engineering and the art of war is confined to the first class year.

The course in civil engineering begins September 1st and is completed during the first term, which closes with the Christmas holidays. It comprises brief treatises on the mechanics of civil engineering, framed and masonry structures, the materials of engineering, water supply and sewage.

The course in military engineering and the art of war begins on January 2nd and closes on the 3rd of June. Military engineering embraces the study of field and permanent fortifications and siege works. The art of war embraces the study of the organization of armies, employment of the different

arms in combination, logistics and strategy. To familiarize the students with its principles, lectures are delivered on military subjects and the principal operations of about twenty selected campaigns are studied. During this course the students are taken to the battlefield of Gettysburg to familiarize them with the effects of topography on the employment of troops in the field.

TEXT BOOKS.

Civil Engineering. Fiebeger.
Field Fortifications. Fiebeger.
Permanent Fortifications. Fiebeger.
Elements of Strategy. Fiebeger.
Army Organization. Fiebeger.
Siege Works. Mercur.
Field Service Regulations. U. S.
Campaign of Gettysburg. Fiebeger.

BOOKS OF REFERENCE.

Campaigns and Battles. Department.
Story of Civil War. Ropes. Cambria Steel.

The department has a well-selected reference library on civil engineering, military engineering and the art of war.

DEPARTMENT OF NATURAL AND EXPERIMENTAL PHILOSOPHY.

SECOND CLASS.

The course in natural and experimental philosophy begins with and continues throughout the third academic year. Mechanics is studied during the first term. The text used is Gordon's "Mechanics." Many of the principles are illustrated by apparatus in the lecture and section rooms, and the students are required to repeat and explain these experiments. The course aims to be as complete as possible with the limitation that it can be properly covered in a term of about 90 to 100 days by students having a proficient knowledge of the calculus; the treatment is sufficiently mathematical to furnish a confident basis for advanced work in the technical staff after graduation.

During the second term about 120 lessons are allotted to this department. The first half of this time is devoted to the subjects of sound and light. The authorized text-book is Gordon's "Sound and Light."

Astronomy is studied in the remainder of the second term. The texts used are Young's "General Astronomy" and Michie and Harlow's "Practical Astronomy." The principal aim of this course, in addition to its important value in educational development, is to furnish an ample basis for the establishment of stations in explorations and surveys.

The class attends daily throughout the year, except eight days, during which half the class attends daily.

TEXT-BOOKS.

Sound and Light. Gordon.
Mechanics. Gordon.
General Astronomy. Young.
Practical Astronomy. Michie and Harlow.

Numerous standard works on the general subjects covered by the course are available for reference.

DEPARTMENT OF MATHEMATICS.

THIRD AND FOURTH CLASSES.

The course in mathematics begins with the fourth class year and continues through the third class year.

In the fourth class year, algebra is completed in alternation; first with geometry, then with trigonometry. Plane analytical geometry is begun.

In the third class year, plane and solid analytical geometry and descriptive geometry are completed in alternation. The calculus and least squares finish the course.

The course in algebra covers the entire subject as generally taught in colleges, but the student is expected to have already mastered elementary algebra to include the progressions and the solution of the quadratic equation. The course in elementary geometry includes the books that relate to

the plane and those that relate to space, but the student is expected to have mastered the former. Plane and spherical trigonometry includes the complete solution of the plane and spherical triangles. The course in analytical geometry includes the discussion of the general equation of the second degree in the plane and the particular forms of the equation of the second degree in space.

Descriptive geometry includes, in orthographic projections, the right line, the plane, ruled surfaces and surfaces of revolution, tangent planes and intersections of surfaces. It also covers shades and shadows, perspective, isometric projections and spherical projections.

The course in differential and integral calculus covers the ground of the usual college text-book, including briefly the subject of ordinary differential equations.

TEXT BOOKS.

Elements of Geometry. Phillips and Fisher.
Advanced Course in Algebra. Wells.
Quadratics and Beyond. Fisher and Schwatt.
Elements of Plane and Spherical Trigonometry. Crockett.
Logarithmic Tables. Newcomb.
Conic Sections, Coordinate Geometry. C. Smith.
Coordinate Geometry. Fine and Thompson.
Elements of Analytical Geometry (Solid). Smith and Gale.
Descriptive Geometry. Church.
Linear Perspective. Pillsbury.
Differential and Integral Calculus. Granville.
Integral Calculus. D. A. Murray.
Differential Equations. D. A. Murray.
Method of Least Squares. Johnson.

DEPARTMENT OF CHEMISTRY, MINERALOGY AND GEOLOGY.

SECOND CLASS.

This department embraces two branches of physics not included in its title, namely heat and electricity.

The course begins September 1 of the third academic year and extends throughout this year; exercises, recitations, laboratory work or lectures take place on all week-days.

Commencing September 1, general chemistry, alternating with lessons in heat, occupy the time until the close of the term in December, recitations or other exercises being had daily.

During this term all members of the class whose progress, as shown by their recitations, warrants it, are given laboratory practice in chemistry. This practice begins with chemical manipulations and proceeds in the usual general order of elementary laboratory work. The laboratory exercises are one hour and fifty minutes long. It is generally possible to give all parts of the class some laboratory experience; the amount of this work, however, varies with the aptitude of the student from a few hours to fifty-five or sixty hours.

This term closes with an examination upon the essential parts of the entire course, which all cadets who have not shown a required proficiency in daily work must take.

In chemistry the course is a descriptive general one, based upon a concise statement of the more essential principles of chemistry, and includes that class of information deemed most important to non-specialists, together with an accurate and logical treatment of many useful applications of chemistry.

The course in heat is short, but it is a comprehensive elementary course intended to embrace what is most applicable to subsequent work at the Academy and what is most useful in general education.

Beginning January 2 the daily exercises alternate between geology, mineralogy and electricity. This term also closes with an examination, covering the essential parts of the subjects studied during the term, which all cadets who have not shown a required proficiency in daily work must take.

The course in geology is a brief but scientific presentation of the essential elements of this branch of science.

The mineralogy is an eminently practical course consisting of the descriptive study and the practical determination of the important minerals.

The lithological and palæontological part of geology is accompanied in study by the continued practical examination of the objects described.

The course in electricity is a brief exposition of the leading electrical phenomena and their relations to each other. It includes a study of the general principles of the subject and of the typical machines, generators, motors and transformers, together with the more important uses of electricity. The laboratory exercises give experience with a number of the machines and in the use of a great variety of apparatus employed in the numerous forms of electric measurements. In this term the laboratory work is a part of the electrical course and all cadets enter the laboratory. All laboratory work is performed under the immediate supervision of an instructor.

TEXT BOOKS.

Elementary Lessons in Heat. Tillman.
Descriptive General Chemistry. Tillman.
Practical Chemistry. (Laboratory Guide.) Clowes.
Elements of Geology. Le Conte.
Important Minerals and Rocks. Tillman.
Elements of Electricity. Robinson.

During all terms standard works on the respective subjects are available for reference both to cadets and instructors.

DEPARTMENT OF DRAWING.

THIRD AND SECOND CLASSES.

The course in drawing extends through the third and second class years, attendance on alternate afternoons for a period of two hours during the full academic year.

The order of instruction is as follows:

THIRD CLASS YEAR.

1. Elementary freehand perspective drawing from blocks and objects.
2. Use of drawing instruments.
3. Problems in plane geometry.
4. Problems in descriptive geometry.
5. Lettering. Exercises in this subject continue throughout the course.
6. Elementary problems in third angle projection.
7. Building construction drawing.

SECOND CLASS YEAR.

1. Freehand mechanical, perspective, and memory drawing.
2. Isometric projection of framed structure.
3. Machine drawing, third angle projection.
4. Assembly and working drawings from models.
5. Topographical sketching and drawing.

Instruction is mainly through a loose leaf system of printed instruction sheets covering the various drawings and phases of the work. These are supplemented by short section-room lectures and blackboard illustrations when necessary. Personal instruction is given when needed.

Department pamphlets on Framing, The Steam Engine, and Military Topography are used in connection with the instruction in these subjects. They will shortly be replaced entirely by the system of printed instruction sheets.

DEPARTMENT OF MODERN LANGUAGES.

THIRD, SECOND, AND FIRST CLASSES.

The course in modern languages comprises instruction in French and in Spanish.

French.

THIRD CLASS.

Instruction is given in reading, in composition, and in conversation. The course opens September 1, and continues until June 4, some 219 lessons in all.

Spanish.

SECOND AND FIRST CLASSES.

Instruction is given in reading, in composition, and in conversation, to which special attention is paid. The course opens October 4, of the second class year and closes June 4 of the first class year, 176 lessons all told.

The present text-books are:

THIRD CLASS.

French:—Martin's French Verbs.
Elementary French. Aldrich and Foster.
DePeiffer's French Pronunciation. Bercy's La Langue Française.
Introductory French Composition, Francois. Guerlac's Standard French Authors.
Advanced French Prose Composition, Francois. Potter's Dix Contes Modernes.
Cameron's Tales of France.
Marchand's French Idioms. Revue Militaire des Armées Etrangères.
Labiche and Martin's Voyage de M. Perrichon.
Dike's Scientific French Reader.
Molière's L'Avare.
French Conversation Exercises.

SECOND AND FIRST CLASSES.

Spanish:—Spanish Verb and Spanish Pronunciation. Traub, 2d Edition.
Spanish Grammar. Olmstead & Gordon.
Crawford's Spanish Composition.
Cuentos Selectos by Enrique Pérez Escrich.
Cuentos Selectos by Antonio de Trueba.
Hojas Selectos (Spanish Magazine).
Hill's Spanish Tales for Beginners.
"A B C" Spanish Daily Newspaper.
Spanish Conversation Exercises and Idioms.

BOOKS OF REFERENCE.

French:—French Pronouncing Dictionary. Spiers and Surenne.
Military Technical Dictionary. Wilcox.
Spanish:—New Spanish-English and English-Spanish Dictionary, by Cuyás. Appleton.

DEPARTMENT OF LAW.

FIRST CLASS.

The course in law covers the following subjects:

1. The elements of law.
2. Constitutional Law.
3. International law.
4. Military law.

To illustrate principles in the text-books cadets are required to recite on numerous cases from the reports. Lectures are also given upon the subjects taught, so far as the limits of time allotted to this course permit.

TEXT BOOKS.

The Elements of Law. Davis, G. B.
Constitutional Law. Davis, E. G.
International Law. Davis, G. B.
Military Law. Dudley.

BOOKS OF REFERENCE.

There is a reference library in the department of about 2,500 volumes, accessible to the cadets.

DEPARTMENT OF PRACTICAL MILITARY ENGINEERING, MILITARY SIGNALING AND TELEGRAPHY.

FOURTH, THIRD, SECOND AND FIRST CLASSES.

Fourth Class.—This class is given an elementary course in the theory and practice of surveying, instruction in this subject alternating with mathematics during the last 66 recitation days of the academic year. From May

1 to June 4 the entire morning is devoted to practical instruction in the use and adjustment of surveying instruments and in surveying methods. During this period cadets apply in the field what has been taught them in their theoretical study of the subject just preceding. The course includes instruction in the use of chains and tapes, in profile and differential leveling and earthwork computations, in the use of compass, plane table and transit with special reference to the employment of these instruments in military topographic surveying.

Third Class.—During the period of the summer encampment the cadets of this class receive instruction in knots and lashings, in rowing, in the construction of floating bridges with wooden pontons, canvas pontons and rafts, and in military camp expedients.

Simple exercises in topographic and hydrographic surveying are also given.

Second Class.—The work of the 2d Class in this department is confined to military signaling. During the fall drill period instruction is given in visual signaling by means of flags, heliographs and acetylene lanterns, short messages, both plain and cipher, being sent and received. In the spring period the instruction covers the field methods of electrical communication including the installation and operation of field-wire and buzzer lines and wireless telegraph equipment.

First Class.—During the summer encampment, cadets of the 1st Class are instructed in building pile, trestle and ponton bridges, in improvising methods of crossing streams, in making road sketches both mounted and dismounted, and in combined position sketching. During the fall course this class is given instruction in the construction and operation of appliances used in field engineering, in the erection of spar and trestle bridges, and in the use of explosives in military demolitions. The spring course is devoted to field fortification work, including the construction of trenches, revetments, obstacles, bomb proofs and gunpits; posting and distribution of working parties in the construction of saps, trenches, parallels, and approaches; and tracing and profiling siege works.

TEXT BOOK.

Theory and Practice of Surveying (17th Edition). Johnson.

BOOKS OF REFERENCE.

Plane Surveying. John Clayton Tracy, C. E.
The Engineer Field Manual. Office of the Chief of Engineers, U. S. A.
Manual of Visual Signaling. U. S. Signal Corps.
The Slide Rule. J. J. Clark.

DEPARTMENT OF ORDNANCE AND GUNNERY.

FIRST CLASS.

The subject of ordnance and gunnery is studied by the cadets of the first class throughout the academic year.

The course of instruction covers the principles involved in the construction and use of war material. It is broadly divided into three parts: the theoretical, the descriptive, and the practical. The theoretical part includes the study of the action of explosives, the study of interior and exterior ballistics, the theories of gun and carriage construction, and the principles of gunnery. The theoretical part of the course is not the same for all cadets, those showing the necessary proficiency taking a special course in the time devoted by the remainder of the class to review work.

The descriptive part of the course covers the processes of manufacture of powders, guns, projectiles and armor; and describes the small arms, cannon, machine and rapid-fire guns in use in the United States service, with the carriages, ammunition and accessory appliances required for their service. The department is well supplied with models, which are used in conjunction with the text.

The practical part of the course covers the operation of machines and appliances used in the fabrication of modern ordnance, the latter work being in effect a short but valuable course in manual training.

In connection with the course, visits are made to Watervliet Arsenal, where the processes of gun construction are observed, and to the Ordnance Proving Ground at Sandy Hook, where actual firings from the several classes of guns are observed, including usually one or more shots against armor, and where the latest developments in war material are seen.

TEXT BOOKS.

Ordnance and Gunnery. Lissak.
Exterior Ballistics. O'Hern.
Stresses in Wire-Wrapped Guns and in Gun Carriages. Ruggles.

BOOKS OF REFERENCE.

Ballistic Tables. Ingalls.
Mathematical Tables. Newcomb.
Publications of Ordnance Department. U. S. Army.

DEPARTMENT OF MILITARY HYGIENE.

THIRD CLASS.

The course in Military Hygiene begins September first. It consists of 6 lectures and 13 recitations.

The course covers the essential points in the care of troops, particular attention being paid to the following:

Personal hygiene; exercise and physical training; the selection of recruits; preventable diseases; clothing and equipment; the water supply; foods and their preparation; the disposal of wastes; the sanitation of posts and barracks; the sanitation of camps, marches and battlefields; the hygiene of hot and cold climates; the sanitary duties of line officers; venereal diseases; the nature and effects of alcohol and other narcotics.

During the summer camp, the first class is instructed in the use of the first aid packet and the treatment of surgical emergencies. On marches, at the end of each day, the medical officer discusses practical matters from the view point of the military sanitarian.

TEXT BOOKS.

The Elements of Military Hygiene. Ashburn.
Alcoholic Drinks and Narcotics. Keefer.

REFERENCE BOOKS.

Military Hygiene. Havard.
Theory and Practice of Military Hygiene. Munson.
Military Hygiene. Woodhull.
Practical Hygiene. Harrington.

DEPARTMENT OF ENGLISH AND HISTORY.

FOURTH CLASS.

The course in English and History begins with the fourth class in September and continues throughout the academic year, the whole class attending daily except Saturday (Saturdays also for lectures in December, January, and February.) The class is divided into two parts, which alternate in reciting English and History.

In English, the course of instruction is planned to inculcate the essential principles of rhetoric, both by study of the text-book and by frequent practice in the various forms of composition (including practice in personal and official correspondence), to create an intelligent appreciation of the best in English literature by the study of selected literary masterpieces, and to impart knowledge of the important facts in the history of English literature and language by the study of a text-book and by lectures.

In History, the course of instruction is planned to acquaint the student with the political, social, and economic history from the end of the Middle Ages to the present day, to make him familiar with the fundamental principles of civil government, with special reference to the United States, and to give him knowledge of various typical forms of modern national and municipal governments.

TEXT BOOKS.—ENGLISH.

English Composition in Theory and Practice (new and revised edition). Henry S. Canby and others.

Palgrave's Golden Treasury.
Shakespeare's Works.
Tennyson's Poetical Works.
History of English Literature by W. J. Long.
The Major Dramas of Sheridan.
Selections from Stevenson.
Pinero's The Thunderbolt.

TEXT BOOKS.—HISTORY.

The Development of Modern Europe, Vol. I. J. H. Robinson and C. A. Beard.
Europe since 1815. C. D. Hazen.
Introduction to Political Science. R. G. Gettell.

THE LIBRARY.

Cadets and officers have free access to the library, which comprises over 90,000 books, maps and manuscripts. The collection contains substantially all standard books on the subjects taught in the Academy and is especially complete in military subjects. Its card catalogues (about 315,000 cards) are arranged with the special object of saving the time of cadets. The library is open on week-days from 8 A. M. to 9:30 P. M.; on Sundays and holidays from 2 to 6 P. M.

CHAPTER III.

MILITARY EDUCATION IN CIVIL INSTITUTIONS OF LEARNING.

"* * * We are trying to develop a sense of responsibility in the young men of this country, a sense of responsibility towards their military duty. We educate them to perform all sorts of civil duties, but we do not give sufficient attention to their military duties. We do not seek to make professional soldiers or jingoes, but we want to plant in our people a sensible and sane idea of preparation, what it means, and what its value is. Its value, not only as tending to improvement of our fighting force, but its value as a matter of humanity, because if we are well prepared war will not be thrust upon us, and if it is thrust upon us we will be able to make it short and carry it through with a minimum of loss, because our officers and men will know how to perform their duties efficiently."—*Major General Leonard Wood, ex-Chief of Staff, U. S. Army.*

There are two general classes of civil institutions of learning in the United States, not government schools, which receive more or less assistance from the War Department in that branch of the course of study which pertains to instruction in military science and tactics. These two general classes are:

1. Land Grant Colleges.
2. Other Civil Institutions of Learning. To this class belong the military colleges, academies and schools.

It is necessary in the discussion of military education at civil institutions to divide the subject into three chapters. The present chapter will be devoted to those rules, regulations and instructions of the War Department which are common to the military departments of the two classes of schools. The two following chapters will take up the work of each class in the order named above.

The laws, regulations, and instructions governing the detail of officers of the Army at educational institutions maintaining a course in military science, and the issue of ordnance stores, text books, and other supplies, are revised from time to time and published by the War Department for the information and guidance of those concerned. These instructions go into considerable detail as to the manner of designating officers for duty as professors of military science and tactics, the military course of study, property accountability and all other matters affecting the relations of the War Department with these institutions. It appears advisable to give these mutual obligations in considerable detail, which may seem needlessly tedious, but an analysis will reveal the fact that a clear comprehension of the attitude

of the military authorities toward these institutions cannot be had without such treatment of the subject.

The following Acts of Congress govern the detail of officers of the Army to educational institutions maintaining a military course of study.

Section 1225, Revised Statutes, as amended by act approved September 26, 1888.

Sec. 1225. The President may, upon the application of any established military institute, seminary or academy, college or university, within the United States, having capacity to educate at the same time not less than one hundred and fifty male students, detail an officer of the Army or Navy to act as superintendent or professor thereof; but the number of officers so detailed shall not exceed fifty from the Army, and ten from the Navy, being the maximum of sixty, at any time, and they shall be apportioned throughout the United States, first, to those State institutions applying for such detail that are required to provide instruction in military tactics under the provisions of the act of Congress of July second, eighteen hundred and sixty-two, [the Morrill Act] donating lands for the establishment of colleges where the leading object shall be the practical instruction of the industrial classes in agriculture and the mechanical arts, including military tactics; and after that, said details to be distributed, as nearly as may be practicable, according to population. The Secretary of War is authorized to issue at his discretion and under proper regulations to be prescribed by him out of ordnance and ordnance stores belonging to the Government, and which can be spared for that purpose, such number of the same as may appear to be required for military instruction and practice by the students of any college or university under the provisions of this section, and the Secretary shall require a bond in each case, in double the value of the property for the care and safe-keeping thereof, and for the return of the same when required; *Provided*, That nothing in this act shall be so construed as to prevent the detail of officers of the Engineer Corps of the Navy as professors in scientific schools or colleges as now provided by act of Congress approved February twenty-sixth, eighteen hundred and seventy-nine, entitled "An act to promote a knowledge of steam engineering and iron shipbuilding among the students of scientific schools or colleges in the United States"; and the Secretary of War is hereby authorized to issue ordnance and ordnance stores belonging to the Government on the terms and conditions hereinbefore provided to any college or university at which a retired officer of the Army may be assigned as provided by section twelve hundred and sixty of the Revised Statutes.

An Act to amend section twelve hundred and twenty-five of the Revised Statutes concerning details of officers of the Army and Navy to educational institutions.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That section twelve hundred and twenty-five of the Revised Statutes, concerning details of officers of the Army and Navy to educational institutions, be, and the same is hereby, amended so as to permit the President to detail, under the provisions of said act, not to exceed seventy-five officers of the Army of the United States; and the maximum number of officers of the Army and Navy to be detailed at any one time under the provisions of the act passed September twenty-sixth, eighteen hundred and eighty-eight, amending said section twelve hundred and twenty-five of the Revised Statutes, is hereby increased to eighty-five: *Provided*, That no officer shall be detailed to or maintained at any of the educational institutions mentioned in said act where instruction and drill in military tactics is not given: *Provided further*, That nothing in this act shall be so construed as to prevent the detail of officers of the Engineer Corps of the Navy as professors in scientific schools or colleges as now provided by act of Congress approved February twenty-sixth, eighteen hundred and seventy-nine, entitled "An act to promote a knowledge of steam-engineer-

ing and iron shipbuilding among the students of scientific schools or colleges in the United States."

Approved, January 13, 1891.

An Act to increase the number of officers of the Army to be detailed to colleges.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That section twelve hundred and twenty-five of the Revised Statutes, concerning details of officers of the Army and Navy to educational institutions, be, and the same is hereby, amended so as to permit the President to detail under the provisions of said act not to exceed one hundred officers of the Army of the United States; and no officer shall be thus detailed who has not had five years' service in the Army and no detail to such duty shall extend for more than four years and officers on the retired list of the Army may upon their own application be detailed to such duty and when so detailed shall receive the full pay of their rank; and the maximum number of officers of the Army and Navy to be detailed at any one time under the provisions of the act approved January thirteenth, eighteen hundred and ninety-one, amending section twelve hundred and twenty-five of the Revised Statutes as amended by an act approved September twenty-sixth, eighteen hundred and eighty-eight, is hereby increased to one hundred and ten.

Approved, November 3, 1893.

Extract from the act of Congress approved March 3, 1909.

"That the act approved November third, eighteen hundred and ninety-three, authorizing the detail of officers of the Army and Navy to educational institutions, be amended so as to provide that retired officers, when so detailed, shall receive the full pay and allowances of their rank, except that the limitations on the pay of officers of the Army above the grade of major as provided in the acts of March second, nineteen hundred and five, and June twelfth, nineteen hundred and six, shall remain in force."

Extract from the act of Congress approved April 21, 1904.

Sec. 1. *** That section twelve hundred and twenty-five of the Revised Statutes, concerning the detail of officers of the Army and Navy to educational institutions, be, and the same is hereby, amended so as to permit the President to detail under the provisions of that act, and in addition to the detail of the officers of the Army and Navy now authorized to be detailed under the existing provisions of said act, such retired officers and non-commissioned officers of the Army and Navy of the United States as in his judgment may be required for that purpose to act as instructors in military drill and tactics in schools in the United States and Territories where such instructions shall have been authorized by the educational authorities thereof, and where the services of such instructors shall have been applied for by said authorities.

Sec. 2. That no detail shall be made under this act to any school unless it shall pay the cost of commutation of quarters of the retired officers or non-commissioned officers detailed thereto and the extra-duty pay to which they may be entitled by law to receive for the performance of special duty: *Provided*, That no detail shall be made under the provisions of this act unless the officers and non-commissioned officers to be detailed are willing to accept such position; *Provided further*, That they shall receive no compensation from the Government other than their retired pay.

Sec. 3. That the Secretary of War is authorized to issue at his discretion, and under proper regulations to be prescribed by him, out of ordnance stores belonging to the Government, and which can be spared for that purpose, upon the approval of the governors of the respective States and Territories, such number of the same as may be required for military instruction and practice by such school, and the Secretary shall require a bond in each case, for double the value of the property, for the care and safe-keeping thereof and for the return of the same when required.

Approved, April 21, 1904.

APPORTIONMENT OF OFFICERS DETAILED TO INSTITUTIONS.

As the law now stands a maximum of one hundred officers may be detailed for duty at institutions of learning as professors of military science and tactics. They get full pay and allowance from the War Department, and the institutions at which they are serving are under no obligations to supplement their income by remuneration from the revenues of the institution, but in actual practice this is frequently done, but it is considered a private transaction in which the War Department has no part.

The officers authorized by the act approved April 21, 1904, are in addition to the number allowed by section 1225, Revised Statutes, as amended by the act approved November 3, 1893, and may be made to educational institutions in any State or Territory without reference to population or to number of officers already serving therein. All of the officers detailed under the provisions of this act are from the retired list. They get no pay or allowance from the Government because of their duty with these schools. Any pay additional to that they are already receiving as retired officers (or non-commissioned officers) must come from the colleges or academies to which they have been assigned for duty. The performance of this duty by a retired officer is entirely voluntary and designations are not made except where both the chief executive of the institution, and the officer (or noncommissioned officer) desiring the position make application in writing to the War Department requesting it. It is customary for the college or academy to pay the officer an amount at least equal to the difference between his retired pay and the active pay and allowances of his rank. In most cases this difference is exceeded.

The following apportionment, in accordance with section 1225, Revised Statutes of the United States, as amended by act approved November 3, 1893, has been adopted, and designations are made in accordance therewith:

Apportionment of details of 100 officers of the Army at universities, colleges, academies, etc., based upon the number of States and the population of the States and Territories as determined by the census of 1910.

States and Territories	Details for land-grant schools	Details by population	Total
Maine	1		
New Hampshire	1		
Vermont	1	3	8
Massachusetts	1		
Rhode Island	1		
Connecticut	1		
New York	1	7	10
New Jersey	1		
Pennsylvania	1		
Delaware	1	5	8
Maryland	1		
District of Columbia	—		
Virginia	1	2	4
West Virginia	1		
North Carolina	1	2	4
South Carolina	1		
Georgia	1		
Florida	1		
Alabama	1	5	9
Mississippi	1		
Texas	1		
Louisiana	1		
Arkansas	1	6	11
Oklahoma	1		
Tennessee	1		
Kentucky	1		
Ohio	1	4	6
Indiana	1		
Illinois	1	6	9
Michigan	1		
Missouri	1		
Kansas	1	3	6
Iowa	1		
Nebraska	1		
Minnesota	1	3	6
Wisconsin	1		
North Dakota	1		
South Dakota	1	1	5
Montana	1		
Idaho	1		
Washington	1		
Alaska	—	1	3
Oregon	1		
California	1		
Nevada	1		
Utah	1	2	6
Arizona	1		
Hawaii	—		
New Mexico	1		
Colorado	1	1	4
Wyoming	1		
Porto Rico	—	1	1
Total	48	52	100

All of the regulations affecting the detail of officers of the Army at educational institutions within the United States and its Territories are prescribed by the President of the United States under the provisions of the laws. The names of the universities, colleges and academies having Army details, their classification, the acts of Congress under which the designations have been made, and the officers on duty thereat, (April, 1914) are given by States in Appendix V.

CLASSIFICATION OF INSTITUTIONS BY THE WAR DEPARTMENT.

Institutions to which officers of the Army are detailed by the War Department as professors of military science and tactics are classified by the officers of the General Staff of the Army who make the annual inspections of their military departments. The classification is based on the character of the military instruction and the age of the students attending military classes.

The system of classification was changed on recommendation of the board of officers who made the annual inspection of the institutions in 1913. This system will be put into effect at the annual inspection of 1914. The new system of classification, as prescribed in orders from the War Department, is as follows:

Class M. C.—Colleges and universities (including land-grant institutions) where the curriculum is sufficiently advanced to carry with it a degree, where the students are habitually in uniform, where the average age of the students on graduation is not less than 21 years, where military discipline is constantly maintained, and where one of the leading objects is the development of the student by means of military drill and by regulating his daily conduct according to the principles of military discipline.

Class M.—Essentially military institutions where the curriculum is not sufficiently advanced to carry with it a degree, or where the average age of the students on graduation is less than 21 years.

Class C.—Colleges and universities (including land-grant institutions) not essentially military, where the curriculum is sufficiently advanced to carry with it a degree, and where the average age of the students on graduation is not less than 21 years.

Class S. M.—Institutions not included in any of the classes mentioned above.

The War Department will classify all institutions and make necessary changes of classification upon receipt of the reports of the annual inspections.

DISTINGUISHED COLLEGES.

The institutions of Classes M. C. and C., not exceeding 10 in any year, whose students have exhibited the greatest degree of military training as compared with others of their class, and whose graduates of that year are, by reason of discipline, education and military training, best qualified for commissions in the Army, will be designated, in addition to the above classification as "Distinguished Colleges," and the year or years in which distinguished will be added.

HONOR SCHOOLS.

The institutions of Class M, not exceeding 10 of the whole number in that class, whose students display the greatest degree of military training and instruction, will be designated as "Honor Schools," and the year or years in which so designated will be added.

THE DETAIL OF OFFICERS AND NONCOMMISSIONED OFFICERS.

When the detail of an officer of the Army as professor of military science and tactics is desired, application must be made by the president or other chief administrative officer of the institution to the Adjutant General of the Army.

The application, when no detail has been previously made to the institution, must be accompanied by the last printed catalogue and a certificate as to the number of male students the institution has, the capacity in buildings, apparatus, and instructors to educate at one and the same time; the number of such students in actual attendance at the time of application, or, if the application is made during vacation, the number actually in attendance during the session immediately preceding it, and the number over 15 years of age. The certificate must also show the grade of the institution, the degrees it confers, and whether or not it is a land-grant institution, established under the provisions of the act of Congress approved July 2, 1862.

When application is made for the detail of an officer of the Army at an institution to which none has previously been assigned, it is visited by direction of the War Department at the time of the annual inspection of civil educational institutions having detailed officers, by one of the officers detailed for such inspection, who reports to the War Department whether or not the institution fulfills the requirements of the law and regulations governing such details and recommends specifically whether it should be made.

Application for the first detail, or for renewal of a detail, may include a recommendation by name for such officer or officers as may be deemed suitable by the college authorities. When the officers named are not available for duty, or when such recommendations are not made, selection is made by the War Department from those available officers who may have been recommended for such duty by their military superiors.

Applications for the detail of retired noncommissioned officers must be addressed by the president of the institution to the Adjutant General of the Army, Washington, D. C., accompanied by a certificate to the effect that the noncommissioned officer will be furnished with

quarters, or commutation therefor, and extra-duty pay at the rate of at least 50 cents per day during the period of his detail.

This remuneration of the retired noncommissioned officers does not represent, excepting in but few instances, the actual amount they receive. It is simply a minimum guarantee required by the War Department before a noncommissioned officer will be detailed.

A retired noncommissioned officer is detailed at an institution only where an officer of the Army is on duty.

To be eligible for the detail of an officer on the active list as professor of military science and tactics, institutions are required to maintain under course of military instruction hereinafter described, the following minimum numbers of male pupils over 15 years of age, viz.:

Classes M C and M 100
Classes C and S M 150

An officer of the retired list is not detailed as professor of military science and tactics at any institution (except land-grant institutions established under the provisions of the act of Congress approved July 2, 1862, which are required by said law to include military tactics in their courses of instruction) which does not maintain under military instruction at least 75 male pupils over 15 years of age, excepting under the provisions of the act of Congress, approved April 21, 1904, amending section 1225, Revised Statutes.

Where a State has more than one college endowed by the national land grant, under the act approved July 2, 1862, (the Morrill bill) the college which is designated by the governor of the State is held to have the first claim to the officer allotted to the State for detail at a land-grant institution.

No officer who has not had five years' commissioned service in the Army is eligible for detail as professor of military science and tactics.

The detail of an officer on the active list is for three years. In case an officer achieves marked success and is willing to remain longer on such duty, his detail may, upon application of the college authorities, be extended to four years. The detail of a retired officer or noncommissioned officer will be for four years. He may be again detailed for four years after the expiration of the original detail. In fact there is no limit to the number of successive details a retired officer may have at an institution.

No retired officer above the rank of major is detailed as a professor of military science and tactics unless in connection with his

duties as such he is to hold the position of president, superintendent, or principal of the institution.

Orders detailing an officer to relieve another as professor of military science and tactics direct him to report at the institution during the school year and not less than two weeks prior to the relief of his predecessor.

DUTIES OF OFFICERS AND NONCOMMISSIONED OFFICERS.

The professor of military science and tactics retains copies of all returns, reports, and correspondence, and keeps an accurate journal of the drills and other military instruction. He transfers these records to the officer who may succeed him or to the person designated by the chief administrative officer of the institution. In either case a receipt is taken for the records.

The officer detailed as professor of military science and tactics must reside at or near the institution to which assigned, and when in the performance of his military duties appears in proper uniform.

In his relations to the institution, he observes the general usages and regulations therein established affecting the duties and obligations of other members of the faculty. He performs no duties other than those of instructor in military science and tactics, which may include the duties of commandant of cadets, except by special permission of the War Department.

It is the duty of the professor of military science and tactics to enforce proper military discipline at all times when students are under military instruction, and in case of serious breaches of discipline or misconduct to report the same to the proper authorities of the institution, according to its established methods. In case no suitable action is taken by the authorities of the institution, the professor of military science and tactics reports the facts to The Adjutant General of the Army.

Where practicable a detailed retired noncommissioned officer may be ordered to report to the officer on duty at the school for instructions as his assistant. He is reported by the latter to the president of the school or college, and instructed in his relations to the institution and to its officials. He is required to reside at or near the institution, and performs no duties other than those of assistant to the instructor in military science and tactics and acting ordnance and quartermaster sergeant, except by special permission of the War Department.

MILITARY ORGANIZATION OF STUDENTS.

Pupils under military instruction are organized into companies, battalions, and regiments of infantry, the organization, drill and administration of which must conform, as far as possible, to those of the Army. The strength of companies does not ordinarily exceed 58 students.

Where a battalion organization is maintained a band is authorized, provided its members are thoroughly trained in infantry drill to include the school of the squad.

All rules and orders relating to the organization and government of the military students, the appointment, promotion, and change of officers, and all other orders affecting the military department, except those relating to routine duty, are made and promulgated by the professor of military science and tactics after being approved by the chief administrative officer of the institution.

Upon occasions of military ceremony, in the execution of drills, guard duty, and when students are receiving any other practical military instruction, they are required to appear in the uniform prescribed by the institution.

The students are held strictly responsible for the Government arms and accouterments issued to them.

PRESCRIBED COURSE OF INSTRUCTION.

The main object of the military instruction given at civil educational institutions having Army officers as professors of military science and tactics is *"to qualify students who enter the military departments of such institutions to be company officers of infantry volunteers, or militia."*

Infantry drill and training are considered paramount. Instruction in other branches of the military service is not sanctioned nor is Government equipment issued for instruction in such branches at any particular institution, unless the infantry instruction and training at that institution are found, upon the annual inspection by officers designated by the War Deparment, to have reached a satisfactory plane of efficiency.

The following minimum courses of military instruction, practical and theoretical, are prescribed in orders from the War Department.

At every institution at which a professor of military science and tactics is detailed it shall be provided in its regular schedule of studies that at least three hours per week, or an equivalent of 84 one-hour periods per year for two years, shall be assigned for instruction in the military department, not

less than two-thirds of the total time to be devoted to practical instruction and field training, and the remainder to theoretical instruction.

The instruction will vary according to the nature of the institution and the facilities afforded, but at all institutions will include the following:

Infantry drill regulations.—School of the Soldier, School of the Squad, School of the Company, Intrenchments, paragraphs 584 to 595, Infantry Drill Regulations.

Field-service regulations.—The Service of Information. The Service of Security.

Small-arms firing regulations.—Instruction preliminary to gallery and range practice. Gallery practice. Range practice, when a range can be procured.

The instruction will also include company administration, camp sanitation, and military-map reading. Whenever practicable an annual practice march and encampment will be included.

The additional ground to be covered will be determined by the instructor, having in view the age of the students, the strength of the organization, and other conditions.

Throughout the course of instruction the reasons for the successive steps in the military training will in all cases be carefully shown to the student before the initiation of that particular instruction.

The theoretical course of study will be based strictly upon the main object of the military instruction and will consist largely of talks or lectures, illustrated wherever and whenever practicable by lantern slides and by objects, and covering the essential principles and essential details of the subjects which a company officer of Infantry, Volunteers, or militia should know, and omitting, as a rule, all auxiliary subjects and subjects pertaining to advanced military studies, such as campaigns, strategy, etc., except in those cases where the study of a campaign may be made the basis of the theoretical course or where advanced subjects may be utilized to hold and maintain the interest of the students, or where the time at the disposal of the military instructor is such as will enable him to supplement his theoretical course proper with a course of lectures on those subjects.

The professor of military science and tactics will endeavor to impart a full knowledge of the benefits of military training to the Nation, State, institution, and student.

To this end he will, in a preliminary talk or lecture to the students entering the military department, explain the main object of the military instruction and make clear to the student the benefits to be conferred by the military training, not only in fitting him for the full duties of citizenship, but also in giving him the normal physical development necessary to his continued well-being throughout life.

In order that the graduates of the military department of the civil educational institutions having an officer detailed from the Army on duty may have knowledge of the aims, purpose, and necessity for the Army, and the necessity for a proper military organization, including thereunder not only the troops with the colors, but necessary reserves, the officer acting as professor of military science and tactics will give a course of lectures fully covering these subjects. These lectures will embody, also, a brief resumé of the main features of the military history of the United States, our present military system, and a thorough and careful exposition of the approved military policy. It is of the utmost importance that graduates of these institutions, who are presumably men of education and intelligence, shall take away with them sound and correct ideas on these most-important subjects. Too much time has generally been given to instructing students as though they were recruits, rather than in an effort to impart, in addition to this instruction, those ideas which are of vital importance in the establishment of a sound military policy.

WAR DEPARTMENT INSPECTIONS.

The military departments of educational institutions at which officers of the Army are detailed as professors of military science and tactics are subject to inspection under the authority of the President

of the United States. Stated inspections begin about April 1 and are completed by June 1 in each year. These inspections are made by a board of four officers of the General Staff of the Army, the individual members of which pursue itineraries to be prescribed each year.

The board convenes in Washington, D. C., sufficiently in advance to enable the members to make such arrangements as secures the greatest possible uniformity in methods and standards.

The inspecting officer upon his arrival at any institution calls upon the chief administrative officer present in order to obtain from him the necessary facilities for the performance of his duties.

The board of inspectors reconvenes in Washington, D. C., not later than June 10 in each year, and after comparing individual reports of their inspections recommends the classification of institutions and those to be designated as "Distinguished Colleges" and "Honor Schools," and makes such further recommendations as may be deemed necessary to insure a proper compliance with the provisions of the orders of the War Department, and to improve the methods and character of the military instruction at the institutions inspected. The board also makes special mention of such institutions as may have shown during the year gratifying improvements in their military departments.

These recommendations and the individual-inspection reports are transmitted to the Chief of Staff not later than June 20 in each year.

A copy of the report of the inspection is furnished the president of the institution by the War Department.

DISTINGUISHED COLLEGES AND HONOR SCHOOLS.

For each year that an institution is designated as "Distinguished college," or "Honor school" one member of its graduating class, to be selected by the president and the professor of military science and tactics, acting jointly, is upon graduation, rated as honor graduate. By the term "honor graduate" is understood a graduate whose attainments in scholarship have been so marked as to receive the approbation of the president of the school or college, and whose proficiency in military training and knowledge and intelligent attention to duty have merited the approbation of the professor of military science and tactics. The honor graduate must be a citizen of the United States, unmarried, of exemplary habits, and of good moral character. The honor graduate of a "Distinguished college" must, in addition, be not less than 21 nor more than 27 years of age.

The name of the honor graduate should be reported to the War Department as soon as practicable after graduation.

Honor graduates of "Honor Schools" (under the present classification), and graduates who have been reported in the past as honor graduates of institutions formerly designated as "Distinguished institutions," who become candidates for commissions in the Army and make a general average of 85 per cent or more on the competitive mental examination and fulfill the other requirements for commissions in the Army, are appointed in advance of other candidates from civil life.

In the regulations governing the examination and appointment of candidates from civil life for commissions as second lieutenant in the Army those heretofore reported as honor graduates of institutions formerly classed as "Distinguished institutions" are exempted from examination in certain subjects, as are also graduates of institutions rated as Class M C or Class C and graduates of recognized colleges or universities.

The President of the United States has authorized the announcement that an appointment as second lieutenant in the Regular Army will be forwarded annually to an honor graduate of each of the institutions designated as "Distinguished colleges," provided sufficient vacancies exist after the appointment of graduates of the Military Academy at West Point, the successful competitors in the annual examination of enlisted men, and those candidates for commissions who comply with the conditions mentioned in the preceding paragraph. The honor graduate of the "Distinguished college" must be a member of the graduating class of that institution in the year in which his appointment in the Army is made. He is not required to take any mental examination, but may take the prescribed mental examination in order to compete for precedence in appointment with honor graduates of "Distinguished institutions" and "Honor schools."

Under the provisions of the regulations, universities, colleges and academies whose military departments have shown unusual merit, are published in orders annually by the War Department. As a result of the inspection in the year 1913 the following bulletin was issued from headquarters of the Army at Washington in June of that year:

BULLETIN } WAR DEPARTMENT,
No. 20. } WASHINGTON, June 12, 1913.

Upon the report of the Chief of Staff, based upon the report of the board of officers appointed for the purpose of making the annual inspection of the military departments of educational institutions at which officers of the Army are detailed as professors of military science and tactics, the following-named institutions, arranged alphabetically, are announced as the ten whose stu-

dents have exhibited the greatest application and proficiency in military training and knowledge, as contemplated by paragraphs 6, 32, and 33, General Orders, No. 231, 1909, and paragraphs 10, General Orders, Nos. 53 and 65, 1911, War Department:

Agricultural and Mechanical College of Texas, College Station, Tex.
Culver Military Academy, Culver, Ind.
New Mexico Military Institute, Roswell, N. Mex.
Norwich University, Northfield, Vt.
Pennsylvania Military College, Chester, Pa.
St. John's Military Academy, Delafield, Wis.
St. John's School, Manlius, N. Y.
Shattuck School, Faribault, Minn.
The Citadel, Charleston, S. C.
Virginia Military Institute, Lexington, Va.

The following-named institutions are announced as having been especially commended for the work of their military departments during the past year:

UNIVERSITIES AND COLLEGES.

University of California, Berkeley, Cal.
Cornell University, Ithaca, N. Y.
University of Illinois, Urbana, Ill.
Ohio State University, Columbus, Ohio.
Oregon Agricultural College, Corvallis, Ore.
St. John's College, Annapolis, Md.

MILITARY SCHOOLS.

College of St. Thomas, St. Paul, Minn.
Georgia Military Academy, College Park, Ga.
Kemper Military School, Boonville, Mo.
Kentucy Military Institute, Lyndon, Ky.
Tennessee Military Institute, Sweetwater, Tenn.
Wentworth Military Academy, Lexington, Mo.
Western Military Academy, Alton, Ill.

By order of the Secretary of War:

LEONARD WOOD,
Major General, Chief of Staff.

OFFICIAL:
H. O. S. HEISTAND,
Adjutant General.

AFFILIATION OF STUDENTS WITH THE ORGANIZED MILITIA AND VOLUNTEERS.

Upon the graduation of every class, the professor of military science and tactics, after consultation with the president of the college or school, decides upon and reports to The Adjutant General of the Army the names of such students belonging to the class as have shown special aptitude for military service, and furnishes a copy of his report to the adjutants general of the States of which such graduates are resident. This report contains the following data:

1. Name.
2. Home address.
   Business address.
3. Institution.
4. Year of graduation.
5. Age at graduation.
6. Number of years under military instruction.

7. Highest rank held.
8. Branch of service best fitted for.
9. Rank for which recommended.
10. Whether willing to serve as reserve officer; and if so, in Volunteers or Regulars.
11. Remarks.

It is desired by the War Department to bring the cadet organizations and the Organized Militia of the States into closer relations, and to the attainment of this end professors of military science and tactics are directed to interest the cadets in the National Guard and encourage them to join it upon graduation. To further increase the mutual interest of the cadets and the militia, prominent military officials of the State, with the approval of the college authorities, are invited to inspect the work done in the military department, to review the cadet organization on suitable occasions, and are made acquainted with the qualifications of particular cadet officers who reside in the State in which the college is situated.

Where the necessary legal authority exists or can be obtained, and where such action meets with the approval of the State and college authorities and other conditions are favorable, National Guard organizations consisting entirely of cadets are formed.

It has been the policy of the War Department for sometime to endeavor to secure to the organized militia of the States the benefits of the military training received by young college men, under the direction of an officer of the Army. The following extract from a letter sent out from the Adjutant General's office to professors of military science and tactics at institutions of learning in 1911, states very clearly the attitude of the military authorities at that time:

" * * * the Secretary of War desires that further study and consideration be given to the question of the means by which graduates of the institutions of learning who have military training may be induced to become members of the National Guard.

"To this end the Secretary directs that during the coming year you [the officer on duty at the institution of learning] give as much time and attention as possible to the study of this question, and that at the next annual inspection you submit to the inspector in writing your views as to the most practicable means by which the National Guard may secure the greatest benefit from the graduates of the military colleges and schools throughout the country who are now engaging solely in civil pursuits."

In the orders from the War Department which prescribe the rules, regulations and instructions governing the running of the military departments of civil institutions, the Army officers on duty at these schools are enjoined to encourage all graduates to take the examination for commissions in any volunteer force which may be hereafter called for and organized under authority of Congress, under the provisions of Section 23 of the Act Approved January 21, 1903. Graduates whose names have been reported to the Adjutant General of the Army under provisions previously stated, are excused, if they so desire, from examinations in those subjects which are actually covered by the course of instruction, regular or special, and in which they are declared proficient by the professor of military science and tactics, with the concurrence of the college inspection board convened annually by the War Department. Their marks in these subjects are rated at 75 percent of the maximum.

ISSUE OF ARMS, ETC.

The following regulations are prescribed for the issue of ordnance and ordnance stores, required for military instruction and practice at colleges, universities, etc., under section 1225, Revised Statutes, and the amendments thereof:

As the appropriations for the supply of ordnance and ordnance stores to the Army are very limited, and as the language of the law restricts the issue that can be made to colleges to such as "can be spared for that purpose," issues of ordnance and ordnance stores to colleges are limited to such stores as are enumerated in the following paragraphs, for the purpose of military instruction, to each selected institution having an officer of the Army stationed thereat.

The small arms issued to any institution of learning will hereafter be either the United States rifle, caliber .30, model 1903, the United States magazine rifle, caliber .30, model 1898, or the United States magazine carbine, caliber .30, model 1899, but in no case will the number of arms issued be in excess of the number of male students in regular attendance and actually receiving military instruction, except as provided for elsewhere in this paragraph.

The issue of United States rifles, caliber .30, model 1903, will be made to all institutions which have been reported as a result of the annual inspection for three consecutive years as either "Distinguished colleges" or "Honor schools." In the case of institutions other than those reported as "distinguished" an issue of one United States rifle, caliber .30, model 1903, may be made for every 15 students annually participating in range practice, in addition to the United States magazine rifles, caliber .30, model 1898, with which they are now armed. For every 15 students participating in gallery practice, one gallery-practice rifle, caliber .22, may be issued.

The issue of the magazine carbine will be limited to institutions having mounted cadets and to institutions having cadet students, who on account of their youth, need the arm of lighter weight for instruction and drill. For this latter purpose the magazine carbine may, upon the request of any selected institution, be altered for the attachment of the knife bayonet and gun sling, the actual cost of alteration to be paid by the institution.

The equipments to be used with the United States magazine rifle, model of 1898, and United States rifle, model of 1903, will consist of a bayonet, scab-

bard, gun sling, McKeever cartridge box with leather waist belt, complete, waist-belt adapter (for use with bayonet scabbard), or, in place of the cartridge box with waist belt, a woven cartridge belt provided with pockets and suspenders, such as is worn by regular troops in field service. With the United States magazine carbine the bayonet scabbard and gun sling will not be needed, unless the carbine has been altered under the provisions named above. Canteens, tin cups, haversacks, knives, forks, spoons, and meat cans will be supplied if so desired. Two sets of the authorized fencing equipment (infantry) will also be supplied.

The cavalry saber and scabbard of old design and the non-commissioned officer's sword and scabbard may be issued for the use of the officers and non-commissioned officers of corps of cadets. With the saber there will be supplied the necessary attachment for the leather belt, and with the non-commissioned officer's sword the sliding frog, to enable this sword to be worn on the ordinary waist belt. Four sets of the authorized fencing equipment (cavalry) will be supplied to those institutions having mounted detachments.

A limited number of cavalry sabers and scabbards with the necessary belts and horse equipments will be issued for instruction and drill of mounted cadets, when satisfactory evidence of their necessity for the purpose is presented. The horse equipments to be supplied are saddles, saddlebags, bridles, carbine scabbards, links, stirrups, hooded, with guidon socket, and spurs and straps, all equipments to be of black leather.

When in the opinion of the Chief of Ordnance the supply on hand will permit, breech-loading field guns, as hereinafter indicated, with their carriages, limbers, equipment, and implements, will be issued to military schools or colleges where infantry drill and instruction has reached a satisfactory degree of proficiency:

2 3.2 inch steel guns.
2 breech sights.
2 breech-sight pouches.
2 front sights.
2 front-sight covers.
2 3.2 inch carriages and limbers.
2 sponges and rammers, bore.
4 rammers and sponges, combined.
2 sponge covers, bore.
4 sponge covers, chamber.
2 combination screw-drivers.
2 gunners' gimlets.
2 gunners' reamers.
2 priming wires.
2 vent punches.
2 vent covers.
2 primer pouches.
4 lanyards, new pattern.
1 wheel grease can.
1 wheel grease can knife or spatula.
2 combined tompions and muzzle covers.
2 breech covers.
1 sperm oiler.
2 pole props (for end of pole).
2 paulins, 12 by 12.
4 gunners' haversacks.
2 maneuvering handspikes.
1 water bucket, galvanized iron.
2 prolonges.

Issues of the stores above specified will be made by the Chief of Ordnance to any selected institution upon its filing a bond in the penal sum of double the value of the property, conditioned that it will fully insure against loss by fire, take good care of, and safely keep and account for the same, and will, when required by the Secretary of War, duly return the same, within 30 days, in good order to the Chief of Ordnance, United States Army, or such other officer or person as the Secretary of War may designate to receive them.

For practice firing there will be allowed annually to each selected insti-

tution having 3.2 inch field guns 100 blank cartridges and 300 friction primers. Projectiles will not in any case be issued for field guns.

The following allowances of rifle ball cartridges, blank cartridges, .22 caliber ball cartridges for gallery practice, and targets and target supplies are authorized, subject to the following rules, for educational institutions at which officers of the Army are detailed as professors of military science and tactics and for land-grant colleges having arms supplied by the Ordnance Department, and will not exceed $30,000 in the aggregate for the one hundred such institutions:

The following maximum allowances for each student are prescribed for institutions at which practice is held as indicated:

(1) Forty rounds of rifle ball cartridges for each range, but not to exceed 120 rounds.

(2) Sixty rounds of .22 caliber rifle ball cartridges where gallery practice is held in addition to range practice.

(3) One hundred and twenty rounds of .22 caliber ball cartridges where gallery practice is held and no rifle ball cartridges are to be supplied during the fiscal year.

(4) Ten rounds of rifle blank cartridges.

(5) For any institution, such targets and target supplies as may be desired, but such issue will be made only in lieu of a corresponding monetary reduction of the ammunition allowance as determined for that institution.

The issue of one kind of ammunition in lieu of another kind is not authorized.

No credit will be given for fired shells, empty ammunition boxes, etc.

Any additional ammunition needed must be procured by colleges at their own expense from private manufacturers.

The allowances of ammunition, and the targets, target supplies and dummy cartridges, which can be drawn in lieu of rifle ball or gallery practice ammunition, will be issued on requisitions certified to by the professor of military science and tactics, or in his absence by the president of the institution, who will specify the actual facilities for gallery and range practice, the time allotted by the institution, and the number of students enrolled in the military department to whom opportunity is afforded by the authorities of the institution to participate in gallery or range practice, or both.

Annual allowances date in all cases from July 1 of each year. Requisitions should be forwarded before or as soon after that date as practicable for the current year's supply. Undrawn allowances of one year can not be drawn in the succeeding year.

All ordnance and ordnance stores issued to colleges must be kept insured against loss by fire for the benefit of the United States by the college authorities for their full invoice value, as shown in the bond, and the Chief of Ordnance promptly informed when and where the insurance is placed, and date of expiration.

The transportation of ordnance and ordnance stores from the Government arsenals to institutions of learning and from institutions of learning back to Government arsenals is always without expense to the United States.

The colleges to which issuance of ordnance and ordnance stores are made, under bonds given as required by law, will be required to keep said property in like good and serviceable condition as when issued by the Government, and for this purpose the spare parts, implements, appendages, and cleaning materials necessary will be sold to them at cost prices.

The sales authorized above of spare parts and appendages for small arms will be made by the commanding officer of the Rock Island Arsenal, Rock Island, Ill., or of the Springfield Armory, Springfield, Mass, and in case of other stores by the commanding officer of the Rock Island Arsenal, Rock Island, Ill. Application will be made to these officers by the president of the educational institution desiring the articles for the maintenance of the ordnance stores issued to them and should state that they are for this purpose. These sales are to be made under the provisions of the act of Congress approved May 11, 1908.

When ordnance and ordnance stores are returned to the Ordnance Department by any institution of learning, they will be carefully examined when received at the arsenal, and if they are found imperfect or unserviceable by reason of carelessness or causes other than legitimate use in service, the damage will have to be made good to the United States.

The cost of all missing property must be made good to the United States.

Ordnance stores which become unfit for use from any cause will, upon application of the president of the institution and the approval of the Chief of Ordnance, be sent to an arsenal without expense to the United States; provided, however, that in case of stores having become unfit for use through ordinary wear and tear in service, and not being worth shipment to an arsenal, the president of the institution may submit them to the inspector at any annual inspection, who, if satisfied of their unfitness for use, and that such unfitness resulted from ordinary wear and tear in service, shall cause their destruction in his presence. If upon submission of the stores to the inspector he shall determine that their unfitness resulted from causes other than ordinary wear and tear, he will not proceed with the inspection nor direct their destruction, but action shall be taken as first above provided. Ordnance stores upon reaching an arsenal will be inspected by an officer of the Ordnance Department, and if their condition is found to be due to the ordinary incidents of service they may be replaced with serviceable stores of like character; but if their condition is found to be due to carelessness or other than legitimate causes the extent of damage or value of missing stores will be determined by the Chief of Ordnance and must be paid by the institution before any new issue of stores is made. Ordnance stores destroyed by direction of an inspector may also be replaced with serviceable stores of like character.

The guns and carriages must not be allowed to remain out of doors with only the paulins as a protection from the weather, but they must be housed in a suitable building and habitually kept there except when used for drills or saluting purposes.

Regular property returns will be rendered semi-annually to the Chief of Ordnance by each president or superintendent of an institution supplied with arms, etc., accounting for all ordnance and ordnance stores issued to the institution under his charge. These returns will be made on the blank forms to be supplied by the Chief of Ordnance.

Failure on the part of any institution of learning to comply with the foregoing regulations, or any others that may be prescribed by the Chief of Ordnance for the care, preservation, or accountability of any ordnance or ordnance stores issued to it by the United States, will be considered sufficient cause for the prompt withdrawal by the Secretary of War of the Government property in its possession.

Whenever any institution shall fail to return the public property in its charge within 30 days after demand made by the Secretary of War, the delinquency will be peremptorily referred to the Attorney General that the bond of the institution may forthwith be put in suit.

MILITARY TEXT-BOOKS.

The following allowances of text-books and blank forms is made by the War Department to civil institutions of learning having officers of the Army on duty as professors of military science and tactics:

FOR EACH STUDENT COMPANY:

	No. of copies.
Army Regulations	3
Infantry Drill Regulations	10
Small Arms Firing Manual	6
Field Service Regulations	10
Drill Regulations for Field Artillery (Horse and Light)	5
Manual of Bayonet Exercises	10
Outlines of First Aid to the Injured	6
Manual of Guard Duty	10
Manual of Calisthenic Exercises	10
Company Morning Report	10
Sick Report	10
Enlistment Paper	10
Descriptive List	10
Field Return	10

	No. of copies.
Return of Troop, Company, and Battery	10
Muster Roll	3
Ration Return Book	1
FOR EACH BATTALION.	
Morning Report, Field, Staff, and Band	10
Guard Report	10
Correspondence Book	—
Consolidated Morning Report	—

The professors of military science and tactics are held strictly accountable for the text-books issued to institutions at which they are detailed for duty.

The professors of military science and tactics are required to forward to the Adjutant General of the Army at Washington, as soon after the opening of the scholastic year as possible, a statement in letter form as to the cadet organization, i. e., the number of regiments, battalions, companies, and bands comprised in the college military organization; where an artillery organization is included, the statement indicates the type of guns used by the organization, and the number of months (calendar) which comprise the scholastic year of the institution.

Upon being relieved from duty at an institution an officer is required to turn over to his successor, or to the head of the institution, all text-books and blank forms in his possession.

CHAPTER IV.

MILITARY EDUCATION IN LAND GRANT COLLEGES AND UNIVERSITIES.

"I would have those sent out by our universities and colleges not only the counsellors of their fellow-countrymen, but the tribunes of the people—fully appreciating every condition that presses upon their daily life, sympathetic in every untoward situation, quick and earnest in every effort to advance their happiness and welfare, and prompt and sturdy in the defense of their rights."—*Grover Cleveland.*

At the outset of this chapter it should be stated that the treatment of the subject must necessarily differ from that given the Military Academy at West Point, the Army Service Schools, or other institutions directly under the supervision of the War Department, where the organization, the curriculum, and practically all the details are arranged and promulgated in orders from Army headquarters.

A "land grant college" is a "civil institution of learning," and in so far as the War Department exercises authority, the manner of conducting its military department, the designating of an officer as professor of military science and tactics, and other details are covered with considerable definiteness in the previous chapter on "Civil Institutions of Learning."

It should be borne in mind that there are fifty-two of these land grant colleges having military departments and that the methods in which they are conducted differ widely. An attempt is made to give elsewhere in this chapter a brief description of this department of each of the schools.

As there has been, and is now, a wide divergence of opinion as to how much of the military should be injected into the curriculum of the various institutions, the writer asks the indulgence of the reader in offering the opinions of several prominent persons who have been identified closely with the enactment of the laws in which the instruction in military science is made mandatory and in putting into practice the provisions of law relating to this subject.

Let it be understood that the only civil institutions of learning in the United States in which instruction in military science and tactics is mandatory under the Federal law are the land grant colleges. These institutions derive their name of "land grant" from what is generally known as the "Morrill Act," a bill introduced in Congress and fathered

by Hon. Justin S. Morrill, member of the National House of Representatives from the State of Vermont (afterwards senator from the same State) which became a law on the 2nd day of July, 1862. It contains but a single reference to military instruction in the future-great universities founded and fostered by its beneficent provisions, and that occurs in section 4, as follows:

**** "without excluding other scientific and classical studies, and including *military tactics.*"

This single reference to military instruction forms the basis of military education in more than half a hundred of our largest and best state institutions.

Other Acts of Congress supplementary and amendatory to this act have been passed from time to time, viz.: The Act of 1883; the Morrill Act of 1890, and the Nelson Act of 1907. All these acts are given in full in Appendix VII.

A bill somewhat similar to the Act of 1862, which had for its object the aiding of institutions of learning, and the propagation of knowledge of agriculture and the mechanic arts, passed both houses of congress in 1858, but was vetoed by President Buchanan and failed to become a law. This bill contained no provision requiring military instruction at the institutions that would have become beneficiaries of its provisions.

It is a matter of significance and interest to note that the bill which finally became a law received the approval of President Lincoln on July 2nd, 1862, the day following the last of the seven days of McClellan's Peninsula campaign.

The interpretation of any document is best obtained when the intentions of its author are ascertained. Some extracts from the speech of Representative Morrill on the floor of the house advocating his measure will prove enlightening. In the course of this speech he placed considerable emphasis on the military feature of the education provided for. Let us use his own words:

"If this measure had been instituted a quarter of a century ago, the absence of all military schooling at the outset of the present rebellion would have been less deplorable in the Northern States. The young men might have had more of fitness for their sphere of duties, whether on the farm, in the workshop, or on the battlefield."

* * * * *

"Something of military instruction has been incorporated in the bill in consequence of the new conviction of its necessity forced upon the attention of the loyal States by the history of the past year. A total unpreparedness presents too many temptations, even to a foe otherwise weak. The national school at West Point may suffice for the Regular Army in ordinary years of peace, but it is wholly inadequate when a large army is to be suddenly put into service. If we ever expect to reduce the Army to its old dimensions and again rely on the volunteer system for defense, each State must have the

means within itself to organize and officer its own force. With such a system as that here offered—nurseries in every State—a sufficient force would at all times be ready to support the cause of the nation and secure that wholesome respect which belongs to a people whose power is always equal to its pretensions. In a free government we have proved, notwithstanding some 'in time of temptation fall away,' that patriotism is spontaneous, but doubtless many valuable lives would have been saved in the progress of this plague-spotted rebellion had we not so long assumed that military discipline was also spontaneous. If ever again our legions are summoned to the field, let us show that we are not wholly unprepared. These colleges founded in every State will *** to some extent guard against the sheer ignorance of all military art which shrouded the country, and especially the North, at the time when the tocsin of war sounded at Fort Sumter."

It must be borne in mind that the bill passed and became a law during the early part of a great conflict which found the nation unprepared to meet either internal or external enemies. This condition partially awakened public sentiment to a sense of danger—a danger not only of the past but of the present. Our lessons military, however, are early forgotten and we soon drift back into a sword-into-ploughshare policy.

The late President M. H. Buckham of the University of Vermont has given clearly the civilian point of view of this national danger of untrained officers. It is some satisfaction to those who fully realize our military unpreparedness, to have an eminent scholar and a man of peace, give expression to such sentiments as are contained in the following:

"A danger which could not be met by an extemporized army, or a levy en masse, but only by a provision which should be of the nature of an institution, not subject to temporary change of feeling, but liable to failure from neglect or forgetfulness. To statesmen looking beyond existing tumults the Republic meant peace, but they were then for the first time learning that peace exists only in those nations that know how to maintain peace. To keep up a large standing army was contrary to the genius of American liberty and to all national traditions. But here was an opportunity to do something toward meeting this ever-present danger of 'unpreparedness' by distributing throughout peace-loving and industrial communities in every State a certain amount of 'military schooling,' as Mr. Morrill calls it, and the result of such schooling in a goodly number of men, highly trained in other respects, with a modicum, more or less, as the plan should work out, of military training superadded."

Again quoting from President Buckham, from a paper prepared by him to be read before the eighteenth annual convention of the Association of American Agricultural Colleges and Experiment Stations, but in the absence of the author read by Mr. G. E. Fellows of Maine:

"Passing now from consideration of the motives and utterances of the founder of the colleges to the language of the organic act, we find that the intent and purpose of the act as regards military instruction gets rather scant expression. It is all embraced in three words—'including military tactics'—'one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach, etc.' That constitutes the entire mandate on the subject. It is evident that the intent of the act was not to establish military institutions—that is, institutions in

which the leading object is to teach the military art. Classical and other scientific studies are not to be excluded, and military tactics are to be included, but the leading object is to teach branches of learning related to agriculture and the mechanic arts. Evidently these were not to be military academies after the manner of West Point in all the States, nor feeble imitations of West Point."

Commenting on the attitude of some institutions and some Army officers detailed as military instructors, President Buckham continues:

"If some institutions or some army officers detailed as military instructors in the colleges have desired to make the military the leading feature, to insist on army ideas and methods in the government of the institutions, and to subordinate practically the other elements to the military, this has been without warrant from the ordaining act. If this had been the intent and purpose of the founder and of the act of Congress, they would have declared military training to be the leading object, whereas it is not included among the leading objects.

"What is meant by the term 'military tactics,' which the act says are to be included in the branches taught in the colleges? Obviously the word 'tactics' is used in a general and popular, not in a technical sense. 'Military tactics' is a broad and elastic term, including much that would not come within a strict definition. This breadth and comprehensiveness, in distinction from a rigid prescription of specific things to be done, is characteristic of the whole act. It recognizes the great diversity of conditions existing in different parts of the country, and now that it is operative in forty-five different States, this elasticity and adaptability to conditions appears still more admirable. It is matter for congratulation that we have in this grand scheme for national education, not a thoroughly organized, bureaucratic system like that which fits in well with the genius of the French people, but a simple outline, a broad, free, suggestive sketch plan, of the general objects to be sought, leaving to the several localities, and specifically to the legislatures of the several States, to fill in the details as their special needs and interests may prescribe. As in the case of all other branches of learning, so in case of the military science and art, the institutions are left free to work out their own problems in their own way, provided that way comes fairly within the express provisions of the act of Congress. As we have seen, the incorporation of military instruction into the curriculum of the colleges was intended to meet one of the great and permanent needs of the country. Such instruction is mandatory upon the colleges. By the acceptance of the grant with its conditions this instruction has become an obligation, recognized as such by the colleges. So much—that the colleges shall give instruction in military tactics—is, so to speak, constitutional, unalterable, not debatable. All else is merely statutory or administrative, subject to by-laws, as wisdom and good policy may ordain.

"Leaving, therefore, large latitude to the predilections of individual institutions for more or less of the military feature in their curriculum, what may the colleges, in an average way, be fairly expected to do as their part toward supplying the country with a soldiery in time of need? The organization of a national militia under Federal laws in all the States has materially changed the situation since Mr. Morrill pictured the nation's unpreparedness in 1862. When not recognized as a part of the militia—as they are in some States—the college battalions represent the possibility of a volunteer corps which would be immediately effective for service, and the individual students and graduates constitute a body out of which officers, commissioned and non-commissioned, could be drawn for service in a suddenly enlisted corps. It can not be expected of the colleges that they turn out thoroughly trained and accomplished officers. It takes four years of military training at West Point to do that. To attempt something very much below this would take so much of the student's time and energy from their main studies that they would go to colleges in which this burden was not laid upon them. But the colleges, without sacrifice to their leading objects, may so train their students in the military art, that they, or a good number of them, would make serviceable sergeants, lieutenants, and captains in any force which the State or the nation might need for keeping the peace and enforcing the laws. It is of some consequence that students should make a good appearance at

inspection or on parade. It is of much more importance that they should learn some of the soldierly virtues, prompt obedience, power of command, the fine combination of self-respect and submission, which make the good citizen and the good patriot as well as the good soldier.

"Coming now to the second part of the question proposed, namely, the relation of the colleges to the War Department, there are two attitudes which the Department may take with reference to military instruction in the colleges. The one view is that the Government has bestowed large endowments on these colleges, and has a right to demand in return special military service which men educated in these colleges can render, and to prescribe the methods of the training which fit them for that service. To this view no objection can be taken if it is not in practice carried so far as to exact of the students an amount of effort which would impair their efficiency in their chosen field of study, and so drive them into other institutions and thus defeat its own intent. It is natural also and honorable in the military authorities at Washington that they should seek to prescribe a standard of instruction and discipline which bears some comparison with that splendid training at West Point which gives dignity and prestige to an officer in the Army of the United States, or at least that their point of view and their estimate of military education should be largely under such influence. Then there arises a difference of judgment between the Department and the colleges as to how much may be insisted on in the way of military discipline, in which we find the Department virtually saying to us, with military courtesy, but with military firmness: 'We will not detail an Army officer to conduct your military instruction unless we can dictate substantially the amount, the methods, and all the conditions of such instruction.'

"The other view which the Government might take is not to insist on military training as an obligation on the part of the colleges and the detail of an officer as a concession carrying with it a certain supervisory right over the colleges, but to look at the whole situation as an opportunity of which both parties should strive to make the utmost for the good of the country at large.

"Here is a body consisting of many thousands of the choice young men of all the States of the Union, as good material as the country or the world affords for making citizen soldiers—such soldiers as the country is likely to need—and at an expense to the Government which is trifling compared with what any other method of getting such soldiers would cost. There is a certain amount of the military spirit—call it the patriot-military spirit—which it is desirable to cultivate in our youth—not too much, not the militarism of France and Germany—not too little—not the supineness and neglect, inviting assault, of the North before the war—but enough to inspire a sense of security and compel respect. Let the Government take advantage of the opportunity it has to get this moderate amount of military spirit diffused among the young men of the nation and, along with it, the moderate amount of military training which will make it practically effective in time of need. This it will best accomplish, not by setting up a military regime of its own within a literary institution, not by issuing orders from Washington which ignore or override the policy and the regulations of the colleges, but by cooperating with the institutions in a patriotic endeavor to make such adjustment of the legitimate claims of the civil and military departments, respectively, that all shall attain their maximum efficiency. Passing over some of the obvious considerations under this head, we may be permitted respectfully to suggest for the consideration of the Department:

"(1) That less emphasis be placed on the manual and technical branches of military training, and more upon the higher, the intellectual, topics in the military art. College students take 'military tactics' as a part of a liberal education, not to fit them to serve as enlisted men. Introducing a certain amount of strategy, the history of campaigns, fortification, problems in 'grand tactics,' etc., would bring the instruction more within the range of college students.

"(2) The inspectors sent to examine and report on the condition of the military departments in colleges should be experienced, broad-minded men, capable of understanding the situation in its larger meaning and possibilities. Some of the institutions have had occasion to complain that young officers, from inability to appreciate the difference between a literary and a strictly military institution, have done them great injustice by setting up

an impossible standard of efficiency and severely commenting on alleged delinquencies. The inspector, especially if continued in office long enough to learn its possibilities, can, by conferring and cooperating with the college authorities, by instruction and advice to the cadet officers, and in many other ways, easily double the efficiency of the military instruction. The institution represented by the writer of this paper enjoyed all these benefits and others under the inspectorship of Col. (now Gen.) R. P. Hughes, U. S. Army. A well-trained officer, a strict disciplinarian, and a thoroughly soldierly man, he interested himself to bring the college battalion up to the highest state of efficiency and to promote the true military spirit among the young men of the institution. In doing this he gathered to meet him the officers of the battalion, lectured them, scolded them, praised them, instructed them, and so discharged the duties of his office in a way at once professional and human that his visits were looked forward to with interest and remembered with pleasure, and though his reports sometimes scored us severely we knew that they were just and kindly. If the Government would always send out inspectors equally faithful to the War Department and equally helpful to the institutions, there would be little cause for complaint on either side and the problem of efficient military training in the college would be in a fair way of satisfactory solution."

The above views are those of a gentleman who for nearly forty years was president of a civil institution of learning which was one of the beneficiaries of the "Morrill bill," as this bill has become popularly known. This view no doubt represents the interpretation of this provision of Congress by university authorities generally—left in a large measure to each individual college, and in some cases, at least partially, to Army officers who have been detailed to colleges by the president of the United States, as professors of military science and tactics, for local interpretation. The views of one of these officers might be embodied here with advantage, which, in a sense, would give the viewpoint of the War Department. Captain C. J. Bailey, (now Brigadier General, United States Army) an officer of wide experience, who while captain of the 15th Artillery, was on duty at the University of Vermont during President Buckham's regime, under detail by the War Department as Professor of Military Science and Tactics, is quoted:

"An opinion is desired as to what extent military instruction should be carried in the land-grant colleges.

"Throwing out those institutions in which the military feature predominates and is advanced as an attraction for students, there remain the colleges or universities in which the student is fitted for almost any profession save the military. In these every hour devoted to military work takes from the student an hour he might advantageously devote to studies in the particular line he has chosen. Should, then, this military work be limited to three hours weekly, and is even this worth to the student and to the college the advantages gained by both from the endowments made by the Government?

"When the writer took up this work in the University of Vermont in 1897 he was of the opinion that the three hours weekly was inadequate for carrying out the purposes desired by the Government, and he still believes that it should be increased, at least during that part of the college year when outdoor work can be carried on, if this can be done without positive detriment to the other work of the college. If this can not be done, however, sufficient instruction can be done in the shorter time to render its value incontestable, particularly if the instructor is allowed some latitude in dividing the students in such a way that small bodies can be instructed in certain parts of the work rather than the whole student body at once.

"In colleges keeping to this minimum much that an officer deems essential in teaching recruits must either be omitted or the student so interested that he will voluntarily do the work by himself. This refers particularly to the 'setting up' drills and calisthenics now so largely employed in the Army. The college gymnasium may and should take the place of these, for it is particularly necessary that the student should have them or similar work both to keep him in health and to give him the correct carriage distinctive of the good soldier and equally advantageous to the good civilian. But the writer realized from his first attempt that to make any progress in the drills of the company and battalion nothing beyond a superficial course in these gymnastics could be attempted.

"Both theoretical and practical military work can be so varied that the interest of the majority of the students is easily retained, the difficulty being to decide on what to omit where time is so limited. Many students find the whole subject uninteresting and even distasteful, and these are the ones to whom much attention should be given, for they are generally the ones most in need of the physical exercise—for their own health. The athletic men are generally the best soldiers and take the most interest in lectures and recitations as well as in the drills.

"That the work so outlined is of value to the Government can not now be questioned. The many valuable officers now in the Army whose only military training was obtained in the land-grant colleges bear testimony to this.

"Earnest and faithful work on the part of the instructor, with the cooperation and support of the faculty, aided by the natural liking of many students for the military, can not fail to render the course successful and give the Government a fair interest on its investment—even with but three hours weekly for each student. The more this time can be increased the better for the Government and, in the opinion of the writer, for the physical and mental welfare of the student and the ultimate good of the college."

At the twenty-fourth annual convention of the Association of American Agricultural Colleges and Experiment Stations held at Washington, D. C., Nov., 1910, Captain Michael J. Lenihan (now Major 2nd U. S. Infantry) of the General Staff of the Army, who had just completed a tour of service of four years inspecting civil institutions having military departments, including about fifty land grant colleges, appeared on behalf of the Chief of Staff of the Army. Major Lenihan's remarks before this body are well worthy of a place here. His words in a sense had the official sanction of the War Department and express very clearly the attitude of the military authorities in the matter.

Dr. Kerr, President of the Association, in introducing Captain Lenihan to the convention said:

"The Morrill act of 1862 is in part permissive and in part mandatory. One of its requirements provides for instruction in military science and tactics. For many years while the institutions were developing, difficulties arose in the adjustment of this work as well as in other lines. But relations during recent years with the War Department have been particularly pleasant. Its system of inspection has served to promote the real interests that military work has represented in these institutions. It has enabled the Department to come into closer touch with the schools and to become better acquainted with the conditions there and the officials of the institutions to become better acquainted with the requirements of the War Department. We are specially favored to-night by the presence of Capt. M. J. Lenihan, representing the War Department, whom I have the pleasure to present to you."

Address of Captain Lenihan:

"I have been sent by the Chief of Staff of the Army, at the request of the distinguished chairman of your executive committee, Dr. Thompson, to meet you in conference here this evening, to speak on military matters.

"During the years 1907, 1908, 1909, and 1910, it was my pleasant duty to visit the land-grant colleges of thirty-eight of the States and Territories for the purpose of making the annual inspections of their military departments.

"The characteristics of a soldier are the love of country, subordination, confidence in superiors, fortitude, temperance, and a strong and robust constitution.

"Any instruction which tends to develop the cardinal virtues in the individual must be a positive factor in the education of our young men.

"The authorities of some of our best colleges and universities have become thorough believers in military instruction as an aid in the general development and training of youth, and are outspoken in their advocacy of its extension. They realize that its benefits are ethical as well as physical.

"The law which requires that military instruction be given in land-grant colleges is contained in an Act of Congress, approved July 2, 1862, by President Lincoln, and familiarly called, after its author and advocate, Representative Justin S. Morrill of Vermont, the Morrill Act. The purpose of this 'Act donating Public Lands to the several States and Territories which provide colleges for the benefit of Agriculture and the Mechanic Arts,' was, as stated therein, 'the endowment, support and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts.'

"In a speech in the House of Representatives, June 6, 1862, urging the passage of this bill, Mr. Morrill dwelt at some length upon the importance of military instruction in these agricultural colleges. Agriculture, the mechanic arts and military tactics are linked closely together throughout his discourse, and the existing necessity for the instruction therein of the young men of the country of the industrial classes is forcibly set forth. He speaks of the great value these colleges would have been had they been initiated a quarter of a century earlier. Had this been done, he says, 'the young men might have had more of fitness for their sphere of duty, whether on the farm, in the workshop or on the battlefield.' Notice how these three lines of human activity are interwoven, the FARM, the WORKSHOP, the BATTLEFIELD; agriculture, mechanic arts, military tactics. * * * *

" 'This bill proposes to establish at least one college in the State upon a sure and perpetual foundation, accessible to all, but especially to the sons of toil, where all the needful science for the practical avocations of life shall be taught, where neither the higher graces of classical studies nor that military drill our country now so greatly appreciates will be entirely ignored. * * * * The aid tendered here will enable these States to fully equip these institutions or to found others where it may be thought wise to give military science something of greater prominence.'

"Referring to the great numbers of young men desirous of obtaining a military education, but for whom it had not been possible to provide at military and naval academies, Mr. Morrill said: 'These young men, if this bill should pass, will find a field open to them large enough to satisfy all reasonable ambition.' Truly the distinguished author of this law had not in mind the establishment of a merely nominal military department in these college when he uttered these words.

" '* * * Manufacturers take no step until agriculture produces a surplus * * * and from this surplus arises raw material and cheap bread, which make the arts and manufactures flourish. From these results commerce. Trade derives all support from the basis furnished by agriculture and manufactures. Then follows the necessity of military and naval protection. In a free government we have proved * * * that patriotism is spontaneous; but doubtless many valuable lives would have been saved in the progress of this rebellion had we not so long assumed that military discipline was also spon-

taneous. If ever again our legions are summoned to the field, let us show we are not wholly unprepared. These colleges, founded in every State, will elevate the character of farmers and mechanics, increase the prosperity of agriculture, manufactures, and commerce, and may to some extent guard against the sheer ignorance of all military art. * * * The true way to nurse patriotism is to inspire our people with confidence, by giving them proper training. * * * *'

"The later land-grant acts, viz., the Hatch Act, 1887; the Morrill Act, 1890; the Adams Act, 1906, and the Nelson Act, 1907, contain nothing which alters or abridges the intent expressed in the act of 1862.

"The passage of this act and the acceptance by the States of its conditions have placed upon them and upon the administrative heads of the land-grant colleges a legal and a moral obligation to maintain efficient departments or schools wherein will be taught agriculture, the mechanic arts and military science and tactics. As Mr. Morrill stated it, the bill fixes these as the leading objects, leaving to the States considerable latitude in carrying out practical details.

"To further assist in spreading military knowledge, Congress, in the 'Act to increase and fix the Military Peace Establishment of the United States,' approved July 28, 1866, enacted.

" 'That for the purpose of promoting knowledge of military science and tactics among the young men of the United States, the President may, upon the application of an established college or university within the United States, with sufficient capacity to educate at one time not less than one hundred and fifty male students, detail an officer of the Army to act as president, superintendent, or professor of such college or university; that the number of officers so detailed shall not exceed twenty at any time * * *' and by a joint resolution, approved May 4, 1870, authorized the issue of small arms and artillery for the military instruction of students.

"These laws are the basis of military instruction in civil colleges. The number of officers whose detail was authorized has been increased from time to time until now it is fixed at 100.

"The law of July 2, 1862; section 1225, Revised Statutes, which is a codification of the laws authorizing the detail of officers of the Army and the issue of arms to colleges; the later acts of Congress amending and extending the provisions of section 1225; and the administrative regulations and instructions of the War Department made pursuant to and in furtherance of these laws, contain all the present requirements. * * *

"There were, at the date of the last annual inspection, April and May, 1910, 50 land-grant colleges maintaining military departments, at which 17,610 students were enrolled, of whom 17,443, i. e., all but 167 students, nearly 100%, were over 15 years of age.

"This number, 17,443, is 72½% of the total enrollment of students over 15 years of age in the military departments of schools and colleges of all classes with which the War Department maintains relations.

"The money value of arms and equipments issued by the War Department to the 50 land-grant colleges is $552,196.08.

"The cost to the United States in salaries and allowances of the officers detailed as military instructors is $173,972.60 per annum, about ten dollars per year for each student receiving military instruction. * * *

"College details are maintained, even while the Army suffers from absenteeism, and the discipline and instruction of the troops are impaired because they are inadequately officered, with the hope that by educating college communities to a better knowledge of the Army, of its necessity, and of its duties, a knowledge of things military may be fostered among our people of all professions and vocations in life. The War Department wishes to reach with this instruction every college man that it can reach, whether he be a student in the college of agriculture, law, medicine, or theology. * * *

"The extension of the military department so as to include the upper classes is most desirable, not so much because all of the students receive a greater amount of instruction thereby, but that the detailed officer has a permanent organization into which the new students are put when they arrive in the fall. He has the material from which to select the necessary cadet officers and non-commissioned officers, without whose aid it is practically impossible to disseminate military instruction. These cadet officers and non-commissioned officers, selected from those students of the upper

classes who have shown most aptitude, form, as it were, the leaven by which the whole mass is leavened.

"It is hoped that all of the land-grant colleges may find some means, either by requirement or inducement, of retaining a sufficient number of their senior and junior students in the military department to furnish at least the necessary officers who are really indispensable assistants to the detailed officer. Besides their usefulness as instructors, the training in the habit of command will be very beneficial to these selected students.

"From the report of the inspector general of the Army for 1898, I find that there were at the opening of the Spanish war about 15,000 men receiving annually theoretical and practical instruction at civil institutions of all classes. This instruction was necessarily interrupted by the Spanish war. The whole number of students, ex-students, and alumni who volunteered in the war is not known. Inquiry made by the inspector general elicited only partial information, but this information is interesting. The presidents of 46 of the colleges responded to the inquiry made for data on this subject. These 46 colleges numbered about 7,100 students before hostilities began. Of their students, alumni and ex-students, 541 entered the Army as officers, and 1,084 as non-commissioned officers and privates for the Spanish war, a total of 1,625, being a ratio of almost 23 students, alumni, and ex-students, volunteering for military service for each of the 100 students enrolled at the opening of the hostilities. * * *.

"Since 1906 the annual inspections of the military departments of the colleges have been made by a board of four officers of the War Department general staff, the individual officers pursuing itineraries prescribed each year, beginning in southern latitudes in April and moving northward, where the inspections are concluded by the end of May.

"By the relief each year of the member of this board who has served four years, and the detail of a member with four years' prospective service in the general staff, a policy that is now established, continuity is given to the board and supervision of the military work in the colleges is placed in the hands of officers who have been able by annual personal visits to familiarize themselves with the conditions existing at the various colleges. Both college presidents and military instructors have assured me that this system of inspection has been most beneficial. Certainly it has brought them into closer touch with the War Department. A steady improvement all along the line is manifest."

President Charles W. Dabney, of the University of Cincinnati in his chapter on land-grant colleges in President Nicholas Murray Butler's book, "Education in the United States," makes the following reference to military instruction in land grant institutions. The statistics he gives in his article have changed widely with the growth of these institutions. His treatment is of interest principally because of the prominence of the author in educational circles and the interpretation of the law which he makes:

"As has been stated, the land-grant act, establishing colleges of agriculture and mechanic arts, was passed in the midst of the civil war. The supporters of the Union had learned through bitter experience that the great need of the Army was trained officers. The chief object of the college was to be, as has been explained, the education of the industrial classes; but the secondary object was the training of young men in military matters who would be ready to serve their country in any future emergency. It will be interesting to notice, therefore, what has been actually accomplished by military departments of these colleges. Forty-two land-grant colleges have fully organized military departments. In the spring of 1898 these colleges had military organizations varying in size from one company to a whole regiment, having nearly 572 officers, 1,456 non-commissioned officers, and nearly 7,000 privates, making a total of about 9,000 cadets under training. It is estimated that about 15,000 young men have completed the course of military instruction in these colleges during the last ten years, and it is evident

that a large number of them will be available for military service in case of need. An effort was made by the writer to ascertain the number of officers commissioned in the Spanish-American war who received their education in these institutions. It was difficult to secure complete statistics, but the partial reports received show that 1,092 young men from these colleges were commissioned by the President in the regular and volunteer Armies during the last war."

A most interesting presentation of the subject under consideration was given at the Twenty-Seventh Annual Meeting of the Association of American Agricultural Colleges and Experiment Stations at Washington, D. C., November 13, 1913. On this occasion the Land Grant College Engineering Association was holding a joint meeting with the first named body. The feature of this meeting was a paper by Dean Edward Orton, Jr., of the Ohio State University, an educator of national reputation, and a man most admirably equipped for preparing a paper on the subject. Dean Orton's paper and the responses by General Leonard Wood, Chief of Staff of the Army, and Captain S. J. Bayard Schindel, of the General Staff, constitute, in the opinion of the author, the most comprehensive and most intelligent treatment of the matter of military instruction at land grant colleges that has ever been presented. No apologies are offered for embodying in its entirety that part of the minutes of the meeting referred to which includes the principal paper and the responses just named.

The part of the minutes named, without abridgement, reads as follows:

JOINT SESSION OF THE SECTION ON COLLEGE WORK AND ADMINISTRATION AND OF THE ENGINEERING ASSOCIATION OF THE LAND-GRANT COLLEGES.

AFTERNOON SESSION, THURSDAY, NOVEMBER 13, 1913.

The meeting was called to order at 2:00 p. m. by the chairman of the college section, R. A. Pearson of Iowa.

THE CHAIRMAN. It gives us great pleasure to welcome the Engineering Association this afternoon. We are under obligation to the members, moreover, for the privilege of listening to a discussion of a most important subject. The president of the Engineering Association, Dean Jackson, will preside during the first portion of the program.

THE ACTING CHAIRMAN. Permit me to express the pleasure we experience in meeting with this aggressive, active, live body of men. We hope that the fact that we are sitting with you is an earnest of future work together.

The first topic to be discussed deals with a vital matter, one written into our land-grant establishment act, to wit, military science. Dean Orton of the College of Engineering of Ohio State University will present this subject. It should be understood that the paper was prepared for presentation to the Engineering Association, a fact which will explain the special references.

The Status of the Military Department In the Land-Grant Colleges.

By Edward Orton, Jr.

Of all the provisions made by governments or by private citizens for the education of the people, in this or any other country, in these days or those of the past, few, if any, can be compared in importance and far reaching effect to the Morrill act of 1862. It has brought into existence a group of institutions without a parallel in the field of higher education, either in the breadth of choice of their educational menu, their accessibility to people of all classes, or in the extent to which they are patronized.

In the Morrill act, as in all other documents of great import, every word and phrase has been studied and its various possible significations discussed. These matters are still under a more or less spirited discussion, which must continue until sooner or later the general consensus of opinion crystallizes.

There is one provision in this act, however, which is not ambiguous in its meaning, yet which is subject to wider differences of interpretation than any of the really debatable clauses. I refer to the words, "and including military tactics." Everbody knows just what this means. There is nothing permissive or optional about it. It means that it was intended by the framers of the law that military instruction should be an integral part of the training given by every land-grant college.

That there are very wide differences at present in the way that a military department is administered in the several land-grant colleges is unquestionable. In some the military discipline is like that at West Point, always in force, and the student lives in barracks, under a strictly controlled schedule. In others the drill lasts one hour per day, but continues through five days a week for the entire four years of the college course. In most of the institutions, drill occurs on three days a week for two years, in others, two days a week for two years, and in others three days a week for one year. From this it appears that while an equal obligation rests upon all institutions founded under the Morrill act to maintain military instruction, there are really very great differences in the extent to which this obligation is felt or recognized in the different colleges.

My purpose in calling attention to these conditions is partly to raise an objection to this lack of uniformity. I think that it is improper that institutions which receive the same bounty should requite this bounty in such very different measure.

But the more important part of my purpose is to call attention to a much more serious matter, viz., the wrong mental attitude which most of these colleges assume toward military instruction, in the fact that they give as little of it as they think will pass muster. I deplore the loss to the students, to the schools, and to the Nation from this faulty conception of what the military provisions of the Morrill act are capable of accomplishing, if administered with sympathy and wisdom. It seems to me that many of us are not giving a good stewardship of the talent which has been put into our hands. Especially do I desire to convince this body that we, as college executives, are failing seriously to take hold of and make effective use of one of the very best tools in our whole educational kit.

The chief motive for the insertion of the military drill requirement in the Morrill act was probably to strengthen our feeble military preparedness by the creation of a body of educated citizen soldiery, which in time of war would become an asset of great importance to us. It was evidently inspired by the serious shortage of persons fit to become officers in the Civil War, which was then in progress, and the terrible suffering of our troops, due to the incompetence and inexperience of their officers. This motive is still the most important one which can be brought forward from the government's side to justify the expenditure which the military drill feature of the Morrill act specifically occasions. But, while I thoroughly believe in this reason for exacting drill in land-grant colleges, still from the standpoint of these schools I consider it of secondary importance, compared to the intrinsic value of the military drill as an element in the education of any young college graduate. It is for the benefit of the institutions themselves, rather than for the improvement of our national military preparedness, that I am urging that the military drill be treated with more seriousness and consideration.

RESPECTS IN WHICH COLLEGE MILITARY INSTRUCTION IS OF VALUE

(1) Disciplinary value. Military drill supplies a conception of authority, and respect for authority, which nothing else does or can furnish. It is needed more now than half a century ago, and will be needed increasingly as time goes on. How many of the young men that come before you in your administrative capacity for advice or reproof give evidence of being reared in a well ordered and well disciplined home? How many cases come before your notice of young men who are lawless and disobedient at college because they have never been controlled at home? Or, worse still, in how many cases where discipline by the university is inflicted upon a young man for infraction of the rules, do his parents show their incapacity for government by siding with the offender and encouraging him in his folly, by misplaced sympathy and by appeals for the waiving of the university's regulations in his behalf? With our colleges full of young men of such undisciplined antecedents, and the proportion of such growing instead of decreasing, the need of a discipline, fundamental, vigorous and absolutely impartial, is apparent. No greater kindness can be shown an undisciplined spoiled boy, whose mother is too weak and whose father is too busy to control him, than to put him under military control, where he learns to obey first and ask why second, and where punctuality, self-control, neatness, and absolute truthfulness are the first requisites. No military discipline can ever give a boy what he ought to get at home, but for the boy who does not get discipline at home, the military training is of inestimable worth.

Obedience does not come from precept or from intellectual conviction solely, or even chiefly; it comes from the knowledge of power and authority; and while intellectual conviction should always be used to its limit in securing obedience, there must always be the shadow of the big stick in the background, whether one deals with savages, or boys; or college professors. That is why a good military department in any college is invaluable. It is the one branch of college work where authority visibly rests upon its actual source of power.

(2) Physical advantage. Young men who come to college may be divided into two classes—those who are in earnest and those who are not. Happily the first class greatly predominates. But both classes make the same error, though from different reasons. The dig does not want to drill because it takes too much time. He has a convenient chance to get a laboratory section or something else, and he does not want to quit and put on his uniform, just when an hour more would finish an experiment or complete a problem. The idler on the other hand finds that drill interferes with his watching or taking part in the college sports or something else, and hence he would like to be excused. An hour of brisk marching in the open air, with head up, shoulders square, and with every sense alert, under the inspiring influence of mass action, team work and military music, is a grand finish for the day of a college student, and a grand preface to the evening meal. In college or out, humankind are prone to neglect the simple laws of health and fail to take exercise. The drill would be worth while ten times over if it did no other thing then to force students to exercise regularly in the open air. One of its great merits is that it catches the very fellow who would not get the exercise except upon compulsion.

(3) Intellectual benefit. As a purely intellectual exercise, military drill is in one respect the equal of any course in college, viz., power of concentration. It keeps a constant demand upon the attention of every man in the company every minute that its lasts. It is memory exercise at first, but as soon as familiarity and practice bring a certain degree of automaticity to the common movements, the nature of the demand changes and the strategical phase of the subject is developed. The handling of troops, even in a simple military ceremony, requires not only concentration but constructive ability, and the moment that the work leaves the field of ceremony and takes up real military maneuvering, such as skirmish drill, out-post duty, etc., the constructive element becomes predominant. No one, officer or private, can acquit himself well in a spirited, snappy drill without giving a high degree of concentration to the task. The more advanced the work becomes, the more broad and diversified demand does the work make upon the intelligence of the student.

It may be objected that the real intellectual labor falls upon the officers, indeed upon the one officer in command. It is undoubtedly true that the leader does the most work and gets the most benefit, but in a student organization the procedure differs from that of the army, in that every effort is made to vary the leadership and to give the opportunity of leadership to as large a number as possible. The modern formations favor this, for every eighth man is a corporal and responsible for his seven men, and every sergeant has his squad or platoon, etc.

(4) Development of character. The old adage that "no one can properly control others who cannot first control himself" is one of these eternal verities which cannot be too often driven into the minds of the young college man. Any young engineer looks forward to controlling others. In a sense every young college man does, whether he is an engineer or not, but in law and medicine and agriculture, the future direct control of a force of men does not loom up on the horizon as it does to one who expects to play a leading part in the railroad, mine, or factory. But how shall we get this power of leadership? How shall we learn to impose our will upon others and still keep their respect and regard? I believe in the laboratory method in most things and I believe in it here. To give a young man power to control others, let him first learn how to obey and to take orders from others. Next, give him a minor responsibility to direct others, and coach him on his faults when he begins. Give him increasing chances to command as fast as he develops ability to use power.

The military organization in a large college offers an ideal method of giving just exactly this opportunity. In a college regiment the size of the companies is usually cut down materially, and the number of officers can be increased considerably over the statutory proportion, without diminishing the prestige of the officers' position to any degree. In this way large numbers of the men get the experience of commanding troops—in fact, every one who develops the least facility or promise in that direction. A young man who cannot develop leadership in a military organization is a young man whose attributes as an engineer need investigation.

Another factor in leadership is the ability to read character. No better place exists in the world to practice this art than in the selection of men for office. Every company captain must study his men, and in making his selections for promotion, under the watchful care of his superior officer, he himself learns a most important lesson.

Another factor in character building is the high standard of personal honor which must go with any effective military control. A soldier is taught a very simple but a very severe code of behavior. He must tell the truth and hate a lie. He must enforce respect for his own rights and must show equal respect for the rights of others. As he wears the uniform of his organization, he must be a gentleman, first, last, and all the time, or he will disgrace his friends as well as himself. He must love his country and serve it with a single mind, even to death. Not a bad platform for a young college man to learn, is it?

(5) Technical training of engineering value. Every intelligent man knows that the losses in the wars of the past have been chiefly caused by disease; that those actually killed or incapacitated by wounds are only a small percentage of the whole. Every one knows, or should know, that the life of an army officer is very largely spent in taking care of the physique, strength and health of his men. For a few moments or a few hours of his life, he may be in battle, where a bullet, or a shell, or a poisoned arrow may rudely interrupt his career; but more than 99 percent of his life is spent in getting ready and keeping ready for this crucial moment. His task is to live right, to conserve and develop his own physical powers, in order to set a good example, and to be able to see that his men do the same. It involves knowledge of the elements of dietetics, the use of water for drinking, the care of one's own person, keeping clean, keeping a whole skin, and treating wounds and minor injuries. It involves the much more difficult task of seeing that others, who do not know or comprehend the danger, or who lack the self-control to suffer privation, are not allowed to take direct, sanitary risks.

Every manufacturing or engineering enterprise is like an army in the fact that its effectiveness is dependent on the physical effectiveness of its men. And how often on the frontiers in industry, as on the frontiers in

war, does the success of an enterprise depend on the ability of the engineer or superintendent to make his men live as they should? How many of our railroad camps, drainage camps, highway camps, and factories are decimated by typhoid, cholera, diphtheria, yellow fever, tuberculosis, syphilis, etc., while work is delayed or stopped and time, money and life are lost, because the engineer in charge did not know that it was his business to protect his men from sickness as well as from accident?

There is no other school so effective in such matters as a well managed camp, where every detail of the sanitation is carefully planned and executed, and where the art of feeding, housing, policing and keeping a body of men well, in spite of unusual conditions of life, is taught by practice as well as precept. Every engineer ought to have the advantage of such an experience as a fundamental part of his education.

But besides sanitation and care of men, military science has many other useful lessons. Military procedure is really engineering. Every military enterprise,—the transportation of supplies, the bridging of streams, the mapping of the country, the making of roads, the making of guns and weapons, the construction of forts and armaments, the science of ballistics, and every other unenumerated branch of the subject, is nothing more than the application of the methods of engineering to the art of warfare. Engineering is, therefore, very properly the backbone in the instruction given in every military school in the world.

The engineering schools ought to try to avail themselves of that part of military engineering experience which is applicable to the peaceful arts of commerce and manufacture. No right minded man will deny to the soldier the credit for what he has done to make the world more civilized, more orderly, more healthful, more habitable. Shall we not take from his experience that part which we need in our daily affairs?

WAYS IN WHICH THE COLLEGE CAN MAKE THE MILITARY WORK EFFECTIVE.

If there is anything in these ideas as to the ways in which a military department can be of service to a college, or even in any one of them, then it would seem that it would be worth while seriously to examine ourselves and see if we are doing what we can and what we ought to make use of this force.

I do not wish to minimize the work that has been accomplished, and is being accomplished, by the military departments of the land-grant colleges under existing conditions. To my mind they deserve in most places the very highest praise for doing so well, with so much indifference to overcome and, often, in the face of veiled hostility. Nevertheless colleges can certainly do a good deal more to make the military work more successful.

(1) Backing up discipline. The college owes no more important duty to the military department than strongly to support the discipline which the latter seeks to enforce. The drill may be short and infrequent, but while it lasts it must be rigidly administered if it is to do any good. Too often the faculty has been guilty of actually subverting discipline, by winking at infractions of the rules, graduating men in spite of shortage of military credits, allowing students to cut drill in favor of some technical duty, etc.

(2) Academic credit. The college should acknowledge the educational value of military training as the equal of any other subject in academic weighting. If a subject is put upon a student's class card as a requirement, with no other credit than a penalty for failure to perform it, that subject is certain to be viewed by the student as an exaction to be gotten through but by no means to be taken seriously. It is discounted in advance. If the college treats the military department with respect and consideration, the student will in time adopt the same attitude, but not otherwise.

(3) Military courtesy. Another way to dignify the military work is for the faculty to observe generally and punctiliously the little formalities and courtesies which a military organization makes possible. If the faculty recognizes salutes and gives them to military officers, the value of the office is enhanced and discipline is strengthened. The whole tone of a college, and the relations of its professors and students in class and out, can be greatly improved by the faculty taking the slight trouble to maintain in their work and contact with students a little of the formal courtesy which is required as a matter of course by the military department in its own internal relations.

(4) Time allowance. Another thing which can be done to help the military work along is to grant sufficient time to the subject, so that the course can be made to include some of its interesting phases and not be confined to a mere repetition of the manual of arms and company formation. Military science, like any other college work, should be so taught that the student can see his own progress, and also see that there is much more to know than he will get a chance to learn. Any active-minded group of college boys can learn the ordinary drill in a very short time if they have the faintest interest in it. The fact that they sometimes accomplish so little is because they have so little interest in it and receive no intimation from the faculty that they are expected to feel otherwise. If the instruction is progressive, so that a second year man is not expected to do the same thing as the first year man, and the third year man is required to do yet more advanced work, the students' interest is soon enlisted. When there is so much that should be taught, it is a pity that the A B C of it should occupy all the time.

(5) Adequate instructional force. Another and a very important thing which the college can do, is to provide adequate teaching force. No college in the land would expect one professor of mathematics to teach a thousand students, nor would it think that it had done justice to its students if it had manned the mathematics department with one professor and an ever expanding and ever changing corps of junior and senior student assistants, to handle the freshmen and sophomores. Without doubt mathematics could be so taught, but any institution that attempted so to teach the subject would lose caste. Yet that is exactly what all of the colleges are doing with their military departments. One army officer seems, in the mind of the colleges, to be able to leaven the whole mass of students with military knowledge, no matter whether there be a company, or a regiment, or a brigade to be handled.

I am not advocating the employment of army officers to do away with or take the place of the student officers. The opportunity to command and to handle troops is a most important part of the military training of the student; but the cadet officer, as well as the troops, should be under the watchful care and daily coaching of a competent teacher. The colleges ought to take the leadership in recognizing this situation. The rule should be that no officer should ever be required to take charge of more than four hundred men, and that where more than four hundred are enrolled, a second officer should be detailed, and a third when the number exceeds eight hundred and so on. It might be argued that with but one hour a day for drill, the work of these men would be light. This would not be so if they took their duties seriously and really gave themselves to the task of building up their work. Target practice, tactic classes, art of war and advanced instruction would keep them busy. It may be objected that the number of officers available under the law of 1893, under which army officers are now detailed, does not permit doubling the detail of officers upon full pay and allowances at one college, except by depriving some other institution of its detail. This, unfortunately, is the situation at present, but is a matter that can be remedied. The law has been amended twice to increase the number of officers available, and can be amended again to provide the number that modern conditions demand.

Meanwhile, there is nothing whatever in the terms of the Morrill act which requires that the land-grant colleges shall depend only upon army officers to give the instruction in military tactics which the law prescribes. They may, if they so desire, go out and secure as military instructors anyone whom they can find who knows the subject, whether retired army officer, militia officer, or civilian. Since the War Department does furnish one officer free of charge to the college, the temptation is very natural to assume that the government's duty is to supply more when needed, and, therefore, to limit the training to what the one officer is capable of doing until the Government sends more. But I contend that this is radically wrong in principle and in practice, and that there is no reason why the college should feel absolved from further responsibility in the matter of providing more instruction when needed. If the War Department withdrew all officers, the schools would still have to provide military instruction just the same.

THE NEEDS OF THE COUNTRY AND OF THE COLLEGES ARE IDENTICAL.

My next thesis is that it is just as important, or more so, to the country at large, and to the War Department in particular, that the military work of our land-grant colleges be strengthened, as it is to the colleges themselves. The officials of the War Department look at the provisions of the Morrill act, and the acts of 1890 and 1907, as being intended to remedy the terrible shortage of officers felt in the Civil War, and, later, in the Spanish War. In view of the very small number of graduates of land-grant colleges who go into the Army or even into the militia, and in view of the inability of the War Department to keep track of these graduates or to have any kind of hold upon them in event of war, these officials cannot see where all the millions that have been poured into these colleges have thus far done anything in particular to improve the military preparedness of the United States. They partly overlook the very wide dissemination over the country of educated men who have had some military knowledge and experience, and who doubtless would flock to the colors in time of need, but their dissatisfaction and unwillingness to place their trust on such an intangible military asset is entirely natural. It simply means, in event of a sudden expansion of the Army in war time, that we shall have a recurrence of the conditions of the Civil War, except that we now have a populace somewhat better trained in military science from which to select.

With the War Department looking at our work in this light, we cannot expect the Government to give us more help unless we can show very clearly that our inefficiency from the military standpoint is not wholly our own fault, that we desire to rectify the situation, and that we cannot do so without further assistance and cooperation.

In order to prove this contention, it will be necessary to discuss briefly the military preparedness of the United States.

Size of the Army. The present status of the Army is not satisfactory to those who are in it or those who are out of it, so far as the latter have knowledge of the facts. It is very small, considering the population, extent, and exposure of the country. It is, we hope, very efficient for its size, and we believe that it would give a very excellent account of itself, as long as it lasted, in a serious war. Its weak spot is that it has no efficient reserve which could be mobilized in time of trouble.

To create a reserve, two things are necessary—competent officers and willing men. The officers must be competent as well as willing, for an officer cannot be made in a day, no matter how much good-will he brings to the task. In short, a competent officer is a highly trained professional man, whose education and experience must cover five years at least. With competent officers, willing men can soon be made into an effective military asset. The problem of officering the reserve is the real problem, and the one in which the schools can assist in the solution.

The militia reserve. To supply a reserve, two plans have been considered. The first one is to nationalize the state militia under the Dick act. This has been a good measure and is doing a good deal that it was hoped it would do. It has greatly improved the efficiency of the rank and file of the militia. It has trained their officers somewhat. It has welded them more closely into a really national body, but it has not increased the strength of the militia force, nor has it removed its one greatest source of weakness—the elected officer. The highest grade of military discipline can never be developed where the officers hold office by the suffrage of the rank and file. The militia, therefore, does not constitute an efficient reserve, either in numbers or in quality, and it certainly could not be depended upon to supply many extra officers for the speedy recruiting of a still larger volunteer force.

The veteran reserve. A second plan for recruiting a reserve has been to keep in touch with all discharged soldiers of the army, so that they could be quickly called together in time of need. No money is now available for this purpose, and, hence, the men have no sufficient inducement to keep the War Department advised of their whereabouts and do not do so. Until Congress passes legislation for a paid reserve, we shall continue to make little or no headway in this important phase of our national defense. The discharged soldiers are not of proper caliber for commissioned officers in any case, and, hence, do not touch the problem we are considering.

West Point and the private military schools. West Point for a long time has not been able to fill the ordinary vacancies of our regular standing army. Every year a considerable number of vacancies are filled with fairly efficient graduates of private military schools, a very few graduates from land-grant colleges, and some from civil life with a minimum of fitness or efficiency. A few officers are also secured from the rank and file of the Army, after passing rigid examinations. All combined, these sources are barely able to supply the needs of our small standing army, and would, therefore, not be able to make much of a showing in providing officers for a reserve or a volunteer army.

The McKellar proposition. There is now pending before Congress a bill (H. R. 8661) to establish and maintain military training schools in the several states and the District of Columbia. These schools must have not less than three hundred students per annum. They will be given an annual federal appropriation of $80,000, and a state appropriation of $40,000. The total annual federal appropriation contemplated is $3,920,000. To teach military science in these forty-nine schools, on a plane of efficiency comparable with West Point, or even the better grade of private military schools, would require from three to six army officers per school, exclusive of the instructors for civil subjects. This would require from one hundred and fifty to two hundred officers at the least, which would add $500,000 to the cost of the plan. The Secretary of War has refused to approve this bill and has urged that such a sum of money should rather be used to establish a paid reserve.

The Army student camps. There have been recently established two student camps, one in California and one in Pennsylvania, conducted by the Army for the benefit and training of students in military schools, including land-grant colleges. These camps last six weeks and have been attended by less than two hundred and fifty students. Attendance is voluntary and students must pay their way to and fro, but are subject to no expense except subsistence while in camp. Any student who becomes dissatisfied can withdraw at any time, so that real military discipline is not enforcible. Fifteen or more officers are detailed to supervise and instruct at these camps.

This experiment is a good one as far as it goes, but it does not go very far. It undoubtedly tends to stimulate military enthusiasm in the young men who attend the camps, and also greatly assists in increasing their military knowledge and competence. But on its present basis it cannot become a very important measure, because the expense to the student rules out the ones who are most likely to make effective use of such an opportunity, and it gives the training to young men who are headed for West Point and the Army anyway, and who will get the training in time much more thoroughly. It really touches the problem of the reserve officer only to a very limited extent.

The land-grant colleges. The Government is paying out annually under the act of 1890 and the Nelson amendment of 1908, the sum of $2,400,000, and the land-grant colleges are also receiving many millions more from the fruits of the original Morrill act, which sums are not now a tax upon the Government's resources. This great sum of money goes to a large group of land-grant colleges which are required to teach military science as a condition of their existence. They are doing so in such a perfunctory and spiritless way that the War Department can see little practical return, so far as military preparedness is concerned. The Secretary of War, in a recent report to a congressional committee, says:

"In this connection it may not be improper to invite your attention to the fact that there is now and has been for many years in each of the several states an agricultural and mechanical college aided by the Federal Government, where the law requires that military education be given with a view to training young men to act as subalterns of volunteers. These colleges were created by the Morrill act of 1862 and were further endowed and supported by the second Morrill, the Nelson, and subsequent acts. By these acts Congress sought to prevent in the future the serious shortage of the Civil War in officers and provided liberally in funds for this purpose, and yet, in spite of the earnest endeavors of the War Department, extending over a period of years, the purpose of Congress has been largely defeated, while at the same time its appropriations have been used. This is due to

the failure of the acts to be specific in stating what shall be done and the failure to provide a penalty for the institutions not carrying out the purpose of the acts."

THE LOGIC OF THE SITUATION.

In all this, two facts stand out clearly. The first is that it is the obvious duty of the Government, instead of embarking upon new and expensive experiments, like the McKellar bill, to take hold of its present machinery and make it go; and the second is that it is obviously the duty of the land-grant colleges to wake up to this part of their obligation to the Government, and, besides removing all obstacles of their own making which stand in the way, to set themselves seriously to make some actual military output of a quality which the Government can recognize and use.

Neither the Government nor the colleges, operating separately or alone, can succeed in this matter. It is a matter for cooperation. We already have the organization for doing what is needed. No new one is needed. With a few simple changes, the whole system can be made to work successfully and economically, to the great saving of the Government in its quest for more officers, and to the much greater efficiency of the colleges.

Here are the things which ought to be done:

First. Pass an act defining a reasonable minimum of military instruction which every land-grant college would have to maintain. This minimum should include:

(a) Not less than two years of military drill for all students, except those exempted for cause.
(b) Not less than three separate periods per week under military control, with not less than one hour per period.
(c) The discipline during military drill periods to be strict, with insubordination punishable by suspension from college.
(d) The instruction to comprise drill in manual of arms, squad, company, battalion and regimental drills, military ceremonies, target practice, skirmish drill, outpost duty, and not less than one week of camp per year, and class room instruction in tactics, and in the care of men and sanitation of camps.

Second. Pass an act requiring the frequent examination of the efficiency of this work by the War Department, with power not only to withdraw their officers from the institution failing to maintain proper standards, but also to enjoin further payments under the act of 1890 and the Nelson amendment, until the case of the college in question had been brought for adjudication before some authority designated by the President.

Third. Amend the act of 1893 which limits the number of army officers who may be detailed to educational institutions to one hundred, so as to make it possible to detail one active or retired officer under full pay and allowances for each four hundred students under military discipline.

Fourth. Pass an act requiring all land-grant colleges to which two or more officers are detailed, to provide a four-year course in military engineering, said course to include, beside the fundamentals of a good engineering education, four years of military drill, and instruction in such courses in advanced military subjects as the Secretary of War may prescribe.

Fifth. Pass an act permitting the Secretary of War to appoint all graduates of such military engineering courses as second lieutenants in the army for a period of one year following their graduation, with full pay and allowances, at the end of which time their appointment may become permanent, if vacancies exist, or they may go into civil life, retaining their commissions as officers of the reserve.

Sixth. Encourage the respective states to pass laws, connecting cadet regiments in the land-grant colleges with the national guard of those states, in the same general relation that the United States Military Academy bears to the United States Army, to the end that the military equipment now furnished to the national guard by the War Department may be available to the cadet regiments as well, and that the officers now detailed in the several states to inspect and instruct the militia may be available for similar purposes for the cadet regiments, and also to the end that the students, who do not graduate in the proposed military engineering course but who take an interest in military affairs, may be more readily absorbed into and become a part of the militia of the states upon leaving college.

This sixth item is really of very great importance, for the reason that the army officers now detailed to the militia could, without any additional expense to the War Department, do a large part of the work proposed in the other parts of this scheme, and because the artillery, cavalry, signal corps, hospital and camp equipment now in the state arsenals could be made vastly more efficient and useful than it now is without in any way decreasing its value for the present purposes. In short, the War Department has now in the various states, officers and equipment enough to carry out the major part of the above plan without additional cost.

CONCLUSION.

The duty of the Land-Grant College Engineering Organization seems to me perfectly clear. It cannot by its own legislation bring any of these things to pass. It can appoint a committee on military education to study the whole subject and to find out how far their respective land-grant colleges would care to cooperate towards the attainment of these ends, and, after conference with the War Department, to prepare legislation for submission to Congress and to the several state legislatures.

The present is the psychological moment for this organization to act. The War Department is considering various plans to get more officers for a reserve and for active duty. Thus far none of them have been very productive. Congress is considering new and expensive legislation to create new military schools, duplicating what we already have. If we step forward now and show both the War Department and Congress where they can save money and gain their ends more efficiently, and at the same time add greatly to the effectiveness of our own colleges, we shall have most richly justified our existence as an organization.

May I say in addition that the one thing that it seems to me is the most important in this whole discussion is the recommendation that there shall be a specific military engineering course in the land-grant colleges, a course which will have a military outcome, just as we now have a civil engineering course and produce civil engineers, or a mechanical course and produce mechanical engineers. In view of the governmental expenditures at these colleges we are in duty bound to teach this subject. The fact that the War Department urgently needs a body of men which we are not producing but can produce and which they are not getting from any other source, shows that we have thus an opportunity to be of incalculable benefit to the whole country. If our engineering schools will devise a simple course of military engineering, we can yearly turn over to the Government a number of graduates; and the Government can, by making these men second lieutenants for a year, make it well worth the while of any young man to take such a course. He would secure a year's salary as an army officer. Even if he stayed but that one year, he would still be a trained soldier, available in time of war. At present the Morrill act is simply slightly upgrading the military intelligence in the population at large, and it is failing to produce a highly specialized product.

THE ACTING CHAIRMAN. We will now have the pleasure and honor of hearing from General Leonard Wood, Chief of Staff of the United States Army.

ADDRESS OF MAJOR GENERAL LEONARD WOOD, CHIEF OF STAFF, UNITED STATES ARMY.

One of the most encouraging signs of our military situation is found in the paper which has been presented here today. It outlines what the Department is trying to do in the way of establishing more effective relations with the educational institutions maintaining courses in military instruction. It presents a most intelligent grasp of the situation with which we are confronted. The Department is most anxious to give more assistance to the military departments of these land-grant colleges than has been given in the past. By assistance I mean assistance in the sense of getting in touch with these departments through the school section of the general staff and bringing about a better understanding and a fuller

MAJOR GENERAL LEONARD WOOD, U. S. ARMY,

Chief of Staff April 22, 1910, to April 21, 1914.

measure of cooperation. The main difficulty we have nowadays is to secure suitable officers for this college work, for officers, like other men, are not all fitted to teach; they are not all possessed of those peculiar qualities which attract young men and make a task sometimes uninteresting, interesting. In other words, there are many admirable officers who are not adapted to take hold of the work at institutions such as you gentlemen represent. You have outlined in this paper a plan for securing reserve officers which is on a line with one which I have presented from time to time during the past year. I believe the idea is a sound one, and one to which we can turn with the certainty of securing efficient officers for a reserve who will be available in time of war. It has always been my conviction that we must make a rational preparation for war. Our people do not seem to understand that wars are not emotional affairs; that they are governed by great influences. Governments do not make wars, but are generally simply the instruments of the people in declaring war. Wars are really declared by the people and officially announced by the Government, and they are brought about by influences almost as uncontrollable as the seasons.

We all believe in the largest possible measure of arbitration, but we all know that there are some things, like citizenship and other matters which pertain strictly to us, which are not open to arbitration. Much as we wish to avoid war we shall inevitably be confronted with it in the future as we have been in the past. If we were called upon to mobilize a force to meet the early stages of a war with a first-class power—and you must remember that we have never had such a war, or at least we have never fought such a war unaided—we should require a minimum of 600,000 men. That it is not a large number is apparent when one remembers that in the Civil War there were 2,600,000 men in the Northern armies and over 1,000,000 in the Southern armies. In view of the length of our two coast lines, it is a very small number; and that is all we are trying to arrange for. Now the regular army and the militia under their present organization, together would not furnish more than 150,000 dependable troops, and we should have to raise about 450,000 men from the population. You hear much talk about our tremendous military resources—undeveloped resources is the term most commonly used—and used with a certain sense of satisfaction by those who understand nothing of what preparation means. Undeveloped military resources are just about as useful in time of war as an undeveloped gold mine in Alaska in a panic on Wall Street. It is a valuable asset if you have time to develop it, but not otherwise, and it will not help you during the crisis. You have just seen a great war with the decisive battles fought in the first month. Wars are coming that way. Modern wars come quickly, and when they come upon us, whoever our antagonist may be, he will take advantage of the fact that we are never ready, and war will be made with more than usual promptness in order that we may not be able to assemble even such scanty organized and trained resources as we have.

How are we going to get officers for these 450,000 men? This is a serious question. It means at least 15,000 to 16,000 officers. Where are they coming from? Officers cannot be created over night. We had for a long time a reserve force of officers, men who fought in the Civil War. We had in the North probably two million men, most of whom had had military instruction, and many of them service in war. In the South there were probably a million who had had military service and experience. In this great mass of men there were many thousands of officers. For twenty years after the Civil War many of them were available and still of an age which rendered them fit for military service. They are no longer available, and our supply of officers must come from some other source. I believe we could, acting upon the joint recommendation of the president of the university and the officer of the Army in charge of the military department, select each year from the five or six thousand graduates of colleges and schools having military instruction, five hundred young men who had taken the military course creditably and appoint them, subject only to physical examination, as provisional second lieutenants in the different arms of the service—coast artillery, field artillery, infantry and cavalry—and pay them for that year the full pay of a second lieutenant, which with allowances, is worth from about $2,200 to about $2,400 a year. A young man

who is fairly economical and careful ought to be able to leave the service with a minimum of $800 at the end of the year. We should not require the more expensive uniforms but only the working outfit. This scheme would give us as reserve officers, young men who have had from 2 to 4 years in a military school under the direction of an army officer and one year in the regular establishment. They would be better trained reserve officers than are most of those in foreign armies. It would be an economical and easy way of securing officers and would tend to popularize military instruction in these colleges and schools.

The War Department itself has been rather inert until recently in the matter of military education. This inertness was due to the fact that up to the time of the Spanish-American War we were dealing with a police situation—the Indian situation. We had a small and highly efficient Army, we encouraged reenlistments, we forgot all about the emergencies that would arise in the case of a war with a first-class foreign power, and drifted on without thought of the military situation that confronts this country and will confront it in case of such a war. Lately, the general staff has been considering the question of reserves of men and of officers. We shall eventually solve the difficulty. We must have behind the regular Army an adequate reserve and behind the militia a strong reserve, because we cannot develop the men quickly—nothing less than three months at least—and war will come very quickly when it comes upon us. The very fact that we are unready will be an inducement for suddenness.

We are trying to encourage a reserve idea in our militia and for the regular Army, and I think we will be successful. If this Association will push forward the recommendations made in this paper, it will find the War Department in a receptive mood, and anxious to cooperate wherever possible. Once we can plant in the minds of the people sound ideas of military efficiency and a true idea of our military history—which few possess—we shall begin to get an intelligent response.

The doctrine we are preaching to the people is the maximum number of men instructed to be soldiers with the minimum interference with their economic careers; that is, the maximum number of men who have had training enough to make them reasonably efficient soldiers, under conditions which will return them to civil life with the minimum loss of time, and so instructed as to be available as soldiers when required. The economic value of military training is very great. Men thus trained are more effective in their work, more responsive, more respectful of authority, do things more promptly and do them exactly as they are told to do them, which makes them all around better working men. Almost without exception, the thinking men in the larger European countries are agreed that two years' service in their armies are a distinct gain to the Nation; that as a result a man when he comes out is a better workingman, a better machine, more observant of instructions given him, and acts more promptly and efficiently, and that the time spent in undergoing military instruction is not time lost any more than that spent in instruction in a school or college. He is being trained for something, trained for systematic, concerted effort. He is a better citizen.

Then there is the humane side of preparation to be considered. If you were asked to put crews of untrained men into the life boats on our Atlantic coast, to handle them in case of necessity, you would object strenuously. You would say: "These men are untrained. It is criminal to put them into these boats. They do not know how to handle them, they do not know how to row." Yet we go on deliberately, as a people, and turn out thousands of youngsters under incompetent officers under conditions more serious than those of any local storm. We throw their lives away with brutal recklessness; too stupid to prepare, we waste wantonly.

We are preaching preparedness, not militarism. We want to get, and are getting, the cordial support of men like yourselves. I hope you will all get behind the recommendations made in this paper. On the part of the War Department I can assure you that the Secretary of War is deeply sympathetic with what you are trying to do. We are trying to develop a sense of responsibility in the young men of this country, a sense of responsibility towards their military duty. We educate them to perform all sorts of civil duties, but do not give sufficient attention to their military duties.

We do not seek to make professional soldiers or jingoes, but we do want to plant in our people a sensible and sane idea of preparation, what it means, and what its value is; its value, not only as tending to the improvement of our fighting force, but its value as a matter of humanity, because if we are well prepared, war will not be thrust upon us, and if it is thrust upon us, we will be able to make it short and carry it through with a minimum of loss, because our officers and men will know how to perform their duties efficiently.

ADDRESS OF CAPTAIN S. J. BAYARD SCHINDEL, WAR COLLEGE DIVISION, GENERAL STAFF, UNITED STATES ARMY.

Dean Orton has clearly indicated what the War Department is trying to do. Its action in any given case depends largely upon the report of the college inspection board. The land-grant college presidents know of what this board consists, what its duties are, and how its inspections are carried out. This year's inspection showed several things; that the work of the officers on detail at many colleges was indifferently regarded by the faculties, whereas at other colleges it met considerable encouragement; that frequently facilities were not afforded for carrying out field exercises, or for adequately preparing students for their duties as competent officers in time of war.

College military training is really divided into two parts; first, the ordinary drill, a mere mechanical proposition which inculcates discipline and concentration of effort and mind on the part of the soldier, but does not prepare him altogether for field duties; and, second, field training. In this latter line of work, i. e., field training proper, the War Department is most interested. It must usually be conducted outside the ordinary limits of college grounds, on the road, where plenty of varied ground is to be found and where the different formations can be explained.

In those schools where the facilities for field training exist, the battalion has been found to be up to a good standard in this respect. In other schools, where more time is put on ordinary drill and instruction, it is thought that the graduates are not up to the required standard. It is right here that Dean Orton has struck the key-note. Through the engineering department we expect to train a man so that he has an eye for ground, so that he can recognize the localities best calculated to teach the various duties of the infantry soldier. Through the engineering department the cadet is taught those subjects which are necessary for the building of the lines of communication, the arteries through which the food and other army supplies must flow. These subjects must be considered the real basis of military education so far as scientific attainments go; hence I believe his suggestions most pertinent.

The War Department, as General Wood has said, sympathizes with any effort on the part of the colleges to improve this work and to accord to the military department a status equal to that of other collegiate departments. In many colleges the engineering department feels, as does the military department, that it receives less encouragement than does the department of agriculture. This feeling is acute in some places. It is to be hoped that through cooperation with the war department the work of the entire cadet force at the several colleges may be brought up to such a standard that the graduates of a land-grant college will possess the same attainments, so far as military training is concerned, as do the graduates of the best military schools. The war department is sympathetic with the ideas broached by Dean Orton and seeks your cooperation in raising the standard of the work which is being done by collegiate military departments.

The many opinions of distinguished educators and Army officers included in the preceding references to military instruction in land grant colleges affords a most excellent view into the present status of this branch of education in these schools. That there is a woeful lack of uniformity, coordination and system cannot be denied. This will

be still further emphasized in the description of the work in each of the institutions which follows later in this chapter. A prediction is ventured that the next few years will witness a decided improvement of this work, and the change will be brought about through the initiative of the War Department and the more progressive institutions, and the acquiescence of the more backward colleges and universities affected.

Before closing the general discussion and taking up the work as administered in the several colleges and universities a few observations and opinions are added.

The class of military work done by the land grant colleges has not been as a general thing satisfactory to the schools nor to the Government. There are several conditions that have contributed to this, among the most notable being the frequency of the change of officers at the institutions as professors of military science and tactics. These officers, if on the active list of the Army, are detailed for this duty for but three years. They no more than get into the ways of the college and students attending their classes before they are in turn relieved by another three-year man. This system makes it difficult to maintain a continuous military policy at any particular school.

Another reason for unsatisfactory results is that quite a few officers designated for this work are unsuited for the duties. An officer may be a most excellent company commander or an efficient staff officer, or perform other military duties in a satisfactory manner, and yet be wholly out of place for duty as a professor in a college. College students are, as a class, entirely different from enlisted men of the Army. Any methods successful with one class frequently prove a total failure in getting satisfactory results with the other. Some officers fail to appreciate this, and friction follows.

While the causes just mentioned lead in many instances to more or less failure in the military instruction at land grant colleges, there are other weaknesses of the system that probably contribute in a much larger degree than those named. The most noteworthy of these is the lack of sympathy with the military department on the part of the faculty of many of these institutions. College professors as a general thing are men of peace. Few of them have had any military training, and with the exception of those in the departments of history but few have made any special study of the question of national defense. They are inclined to look upon the military as a needless expenditure of energy and resources, and upon military men as consumers contributing nothing to the world. The support the military departments receive as a result of this sentiment is limited entirely to that which the authori-

ties of the institution think necessary to keep within the letter of the law prescribing military instruction at these institutions.

This attitude of the governing authorities and members of the faculty has had, in many instances, a discouraging effect upon the officer detailed by the War Department to carry out the provisions of the Morrill act at these colleges and universities. When the officer arrives at the institution he naturally feels very new. Although he has been detailed to the institution with the full rank of professor, his very newness and lack of touch with things in general is not calculated to give him any great confidence in taking active part in faculty meetings and other college activities where the interests of his department should be looked after. As a consequence, unless there happen to be members of the academic faculty who champion the military cause, it frequently receives from the institution just such support as will "get by the law."

Another tendency which has contributed to difficulties of military instruction is the failure of many of these educational institutions to give the proper weight to military subjects. A number of universities at this time are giving but one hour's credit for three hours' work in the military department. This of course has a strong tendency to cause the students participating to form an inadequate opinion of its importance. They naturally think no more of the military department and its work than the estimate placed upon it by the faculty.

Yet another tendency which has handicapped military instruction very largely is the classification of military instruction with athletics. There are all sorts of rules and regulations at various institutions in which the military, athletics and physical culture are mixed up in one jumbled mass. For instance, one institution will have the rule that students who would otherwise be taking the military course are excused from this work while they are members of a "varsity" athletic team. Another institution will require that a specified number of hours work be performed either in the *military* or the *gymnasium,* and so the mixture goes on, creating in the minds of the students the belief that the most they get out of their military periods is the development of their muscles. This has already been provided for in the gymnasium, hence the military is an unnecessary duplication.

It is sometimes difficult to convince an educator that military instruction embraces anything more than mere "drill" or "marching." It is not an unusual thing for a military instructor to be confronted with some such remark as the following when first meeting his future coworkers upon his arrival at college for duty, or on other occasions: "Oh! you are the gentleman who teaches the boys to stand so straight

and march so nicely." If the popular impression is to be carried out a very proper reply to this would be, "Yes, and teach them to two step and waltz."

It is to be regretted that the War Department authorities have not up to this time made a greater effort to impress the faculty of the various institutions which are beneficiaries of Government appropriations with the comprehensiveness of the military instruction. It is possible this missionary work has been left very largely to officers detailed to college duty.

Most faculties fail to appreciate the fact that the officer's duty at the institution is *"to qualify students who enter the military departments of such institutions to be company officers of infantry, volunteers or militia."* This is the gist of the officer's instruction from the War Department. The young men taking the military instruction are in no sense being trained to become privates. The language of the instructions to officers is very plain. Any person having the idea that the instruction necessary to train a college man or anybody else to become an officer in a volunteer army, or in the militia, consists in teaching him to "march," or "stand straight," certainly has a very wrong comprehension of the duties of an officer. It is a very desirable thing of course to have an officer, or a prospective officer, stand erect and throw out his chest, and it is also a very desirable thing to teach him to keep step, but these two things have but little more relation to a proper training of an officer than the learning of the first three letters of the Greek alphabet has to Greek art, or the Roman numerals have to higher mathematics. They are scarcely the A, B, C's of military instruction. They no doubt add much to the appearance of an officer and contribute something to the morale of his men, and to popular opinion of what an officer should look like, but beyond this they constitute but a starting point.

The above treatment of the weaknesses of the system may in a measure seem harsh, and if applied to all the institutions which are beneficiaries of the Morrill act, it would be unnecessarily impatient and unjust, because there are quite a number of land grant institutions which give a very large measure of support to the military departments, the result is at once evident in the increased efficiency of the student battalion.

The wide difference in the class of work accomplished in the military departments of the more than half hundred land grant colleges may be traced in most cases directly to the attitude of the college authorities. While it would be impossible to have a good military

department unless the Army officer at the head of it is competent and interested in his work, it would be equally impossible for him to build up a good corps of cadets without more than a passive interest on the part of the governing body of the institution.

There have been numerous instances where the officers designated for duty at colleges have failed to lay aside the purely military environment previously surrounding them and have attempted to convert a civil institution into a military camp. This effort is of course at once resented and the result invariably is strained relations, the military department being the greatest sufferer from such relations.

It is advisable at this juncture to invite attention to the following provision of the rules and regulations laid down by the War Department for the guidance of officers detailed at educational institutions:

"In his relations to the institution he observes the general usages and regulations therein established affecting the duties and obligations of other members of the faculty. He performs no duties other than those of instructor in military science and tactics, which may include the duties of commandant of cadets, except by special permission of the War Department."

It is very apparent from the above that the War Department contemplates that the officer on duty at a college should be in every sense a member of the faculty, observing all the customs, usages and regulations affecting other members of its instructional corps. A failure on the part of some officers fully to appreciate this injunction has handicapped them in their work and in not a few instances has resulted in severing their connection with the institution. It is true that the instructions are silent in regard to many details of the relations which arise, but on the whole it would be a safe interpretation to state that the president of the college, or the chief executive officer, bears the same relation to an officer as does his commanding officer when he is stationed at a military post. The relations with the former would not ordinarily be surrounded with as much formality or as strict discipline but there is no reason why they should not be. It is believed that better results would often be obtained if the officer would constantly bear this in mind and show the same deference to his superiors in the university or college as he would be required to show his military superiors had he remained on duty with his regiment. Not only would his own department be bettered by such observance but it would naturally have a tendency to inspire in a small degree the same rule of conduct on the part of at least some of the other members of the faculty.

It will be noted that the War Department instructions permit the officer to perform no duty other than that of professor of "military science and tactics," which may include the duties of "commandant of cadets." The appointment as commandant of cadets does not come from the War Department. This is usually made in the form of an executive order by the president of the institution. The office does not ordinarily create anything new excepting a more lengthy title. In the case of civil institutions other than the land grant colleges, particularly military schools, where the students are constantly under military discipline, the office would naturally carry with it additional authority and responsibility.

In actual practice detailed officers frequently occupy a chair in some other department of the civil institution, such as mathematics, history, etc. The officer is not permitted to do this however, without first receiving the permission of the War Department.

The United States, though one of the leading nations of the world, is the farthest behind in its military preparedness. There never has been, and possibly never will be, any great popular demand for meeting this unpreparedness by creating a large standing army. If proper advantage is taken of the opportunities offered for military instruction at institutions of learning, this defect as far as trained officers, or at least partially trained officers is concerned, can be largely met. The college young man makes the ideal officer. His mental equipment is usually such as is desired, he is ordinarily a man of sufficient physical development to meet the physical demands of an officer, and he is necessarily a man of more than usual ambition and energy, otherwise he would not be in college. The time of life when he is in college is the very best not only to instill habits of discipline, respect and obedience toward others, but to demand them for himself where he has been placed in a position of authority.

Our national weakness, if it ever will be properly cured, must be effected through the creation of a reserve army. There is nowhere to be found a better source for the procurement of officers for such an army, with particular reference to company officers, than in civil institutions of learning having an efficient military department. Whenever we as a nation awake to our national shortcomings it is believed we will avail ourselves of this source of supply.

Here is also a wonderful opportunity to secure officers for volunteers and militia and at the same time add to the economic value of the individual, indirectly aiding the other departments of the educational institutions by helping to solve the problems of discipline, attentive-

ness, concentration, neatness, etc. The greatest good, however, will not be accomplished until the War Department and the college authorities get together and adopt a uniform system of instruction, of records, and requirements in general. There should be little left for interpretation either by college authorities or by the War Department. The part to be performed by each should be definitely laid down by congressional enactments.

STATISTICAL.

The following tabulations of statistics pertaining to the land grant schools will pave the way for a more detailed account of the individual institutions. With the exception of the Maryland Agricultural College the data are taken from the reports of 1912-13. Some of the figures for the Maryland Agricultural College are taken from the reports of the year previous. Most of the institutions included in the tables have enjoyed a gradual growth in attendance, facilities and resources almost from the day of their founding, while some of them have had a development beyond the hopes of the most optimistic. It is safe to assume that the total of the column showing the number of students taking military instruction is considerably above the figures here shown. In the individual description of the institutions, which follows the tabulations, it has been possible in many cases to give the actual figures of the strength of the military department for the year 1913-14:

TABLE I.

Undergraduate students in four-year college courses in colleges of agriculture and the mechanic arts.

	INSTITUTIONS	Agriculture	Horticulture	Forestry	Veterinary Science	Mechanical Engineering	Civil Engineering	Electrical Engineering	Mining Engineering	Chemical Engineering	Railway Engineering	Sanitary Engineering	Textile Engineering	General Engineering	Architecture	Household Economy	Chemistry	Pharmacy	General Science	Whole Number of Students in Military Drill
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Alabama Polytechnic Institute	120	90	41	[1]56	108	36	95	12	8	30	...	...	...	38	...	15	5	12	688
2	University of Arizona	22	...	...	...	8	15	6	23	...	...	...	...	...	...	...	...	...	17	70
3	University of Arkansas	42	...	...	...	25	57	75	5	...	...	...	...	...	...	...	...	...	...	275
4	University of California	453	...	...	...	318	223	...	132	...	...	...	...	...	...	...	59	98	...	1400
5	Colorado Agricultural College	69	...	...	39	10	31	11	...	...	...	...	...	50	...	89	...	...	4	557
6	Connecticut Agricultural College	137	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	191
7	Delaware College	22	...	...	...	24	37	28	...	...	...	...	...	6	...	...	...	...	...	169
8	University of Florida	17	19	0	0	6	12	9	0	0	0	0	0	34	...	...	0	0	45	160
9	Georgia State College of Agricul.	125	0	0	0	0	36	0	0	0	0	0	0	0	2	0	0	0	117	...
10	College of Agriculture and Mechanic Arts of the Territory of Hawaii	5	...	...	...	...	10	...	...	...	...	...	...	...	...	1	...	...	8	...
11	University of Idaho	54	...	18	...	8	25	14	12	9	...	...	...	...	...	42	...	...	81	180
12	University of Illinois	783	...	...	...	260	216	280	25	69	21	24	...	129	204	256	42	...	158	1,590
13	Purdue University (Indiana)	399	17	14	80	321	228	348	...	99	20	13	...	...	...	108	10	14	71	842
14	Iowa State College of Agriculture and Mechanic Arts	[2]739	...	42	70	136	141	181	21	5	...	...	...	...	...	311	...	...	71	414
15	Kansas State Agricul. College	358	49	...	49	82	69	124	...	...	...	...	...	...	41	574	...	...	132	497
16	State University of Kentucky	112	...	...	...	[3]155	68	...	26	...	...	...	...	...	...	44	...	...	...	285
17	Louisiana State Univ. and Agricul. and Mechanical College	79	...	...	...	21	20	28	...	13	...	...	...	55	...	...	...	...	...	270
18	University of Maine	103	15	49	0	43	127	88	0	29	0	0	0	0	0	13	34	7	0	381
19	Maryland Agricultural College*	25	11	0	0	21	27	18	0	0	0	0	0	0	0	0	14	0	0	185
20	Massachusetts Agricul. College	535	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	450
21	Massachusetts Inst. of Technol'y.	...	...	...	...	243	[4]212	201	50	149	...	55	...	389	127	...	60	...	4	277
22	Michigan Agricultural College	532	...	53	24	...	...	...	...	...	...	...	...	434	...	272	...	...	...	1,250
23	University of Minnesota	174	...	47	...	75	149	129	...	...	...	...	...	23	17	178	...	...	...	1,183
24	Mississippi Agricul. and Mechanical College	...	...	...	...	16	[5]33	50	...	...	...	...	...	165	...	...	...	...	29	1,056
25	University of Missouri	501	...	...	...	[6]37	[6]79	[6]63	164	[6]8	...	...	...	[7]25	...	...	...	...	1,574	418

26	Missouri School of Mines and Metallurgy	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	Montana College of Agriculture and Mechanic Arts	45	...	...	...	8	19	22	...	...	...	...	...	...	...	47	7	8	35	162
28	University of Nebraska	163	8	61	...	...	40	73	67	...	...	...	...	157	...	148	...	11	...	947
29	University of Nevada	29	...	...	...	54	10	...	30	...	...	...	...	...	...	23	...	...	...	132
30	New Hampshire College of Agriculture and Mechanic Arts	74	4	3	0	4	0	16	0	17	0	0	0	50	0	0	0	0	0	220
31	Rutgers Scientific School (N. J.)	70	0	0	0	24	49	39	0	0	0	0	0	0	0	0	35	0	48	272
32	New Mexico College of Agriculture and Mechanic Arts	14	...	...	...	6	10	5	...	...	...	...	...	...	...	10	...	...	27	150
33	Cornell University (New York)	1,263	...	...	[1]120	956	503	...	...	...	...	...	...	...	144	...	145	...	...	750
34	North Carolina College of Agriculture and Mechanic Arts	157	...	...	...	80	94	102	...	...	...	...	24	...	...	...	17	...	...	350
35	North Dakota Agricul. College	82	...	...	...	25	7	0	0	7	0	0	0	0	0	77	4	6	29	...
36	Ohio State University	470	60	74	[1]155	[8]113	[8]102	[8]108	[8]31	[8]65	...	...	...	[9]286	[8]41	252	...	25	...	1,297
37	Oklahoma Agricultural and Mechanical College	140	...	...	...	...	...	...	...	...	...	...	...	137	...	125	...	...	112	648
38	Oregon Agricultural College	364	...	42	...	87	67	83	20	...	...	...	...	...	...	...	...	...	...	850
39	Pennsylvania State College	464	87	85	...	176	185	243	99	37	3	25	...	[10]32	32	44	164	...	...	1,150
40	University of Porto Rico	29	...	...	...	17	16	4	...	...	...	...	...	...	...	128	...	...	...	234
41	Rhode Island State College	45	...	...	...	10	15	18	...	11	...	...	...	50	...	20	...	...	...	185
42	Clemson Agricul. College (S. C.)	332	...	...	...	...	16	[11]54	...	2	...	...	26	234	10	...	...	...	...	833
43	South Dakota College of Agriculture and Mechanic Arts	54	...	...	...	8	10	21	...	...	...	...	...	...	...	37	...	2	37	296
44	University of Tennessee	98	0	0	0	9	15	28	4	6	0	0	0	53	0	11	0	0	107	197
45	Agricultural and Mechanical College of Texas	382	...	...	...	85	87	157	...	16	...	...	19	...	49	...	...	...	...	999
46	Agricultural College of Utah	154	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	220
47	University of Vermont and State Agricultural College	79	...	...	...	34	49	26	...	...	...	...	...	...	...	13	32	...	8	250
48	Virginia Agricul. and Mech. College and Polytechnic Institute	97	13	...	...	82	57	119	12	1	...	...	...	...	...	...	...	...	...	400
49	State College of Washington	125	89	5	5	27	42	46	24	...	...	...	...	...	8	77	12	4	60	273
50	West Virginia University	43	0	0	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	226
51	University of Wisconsin	681	...	...	...	103	135	114	34	47	...	...	...	216	...	165	77	15	2,074	740
52	University of Wyoming	10	...	...	...	8	11	3	5	...	...	...	...	...	...	6	...	...	...	45
	Total	10,870	462	534	598	3,883	3,398	3,030	769	598	74	117	69	2,525	713	3,074	727	195	2,074	23,864

*Report for 1911-12.
[1] Three-year course.
[2] Agriculture and horticulture.
[3] Mechanical and electrical.
[4] Includes railway engineering.
[5] Includes mining.
[6] Two years' college work required for admission.
[7] Metallurgical engineering.
[8] Last three years only.
[9] Includes 30 in ceramics.
[10] Ind. engineering.
[11] Mechanical and electrical.

TABLE II.

Students in various courses in colleges of agriculture and the mechanic arts for the colored race.

	INSTITUTIONS	Agriculture	Carpentry	Machine Shop	Blacksmithing	Shoemaking	Broom-making	Wheelwrighting	Bricklaying	Painting	Printing	Harness-making	Tailoring	Plastering	Sewing	Cooking	Laundering	Nursing	Millinery	Military Drill
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Agricultural and Mechanical College for Negroes (Alabama)....	48	12	10	11	6	...	4	16	8	6	...	30	8	56	50	30	42	12	112
2	Branch Normal Col. (Arkansas).	54	20	14	18	...	...	...	...	2	...	...	...	...	60	...	4	...	10	...
3	State College for Colored Students (Delaware)	6	25	...	8	...	...	8	10	25	4	...	...	10	34	34	16	...	...	65
4	Florida Agricultural and Mechanical College for Negroes.....	220	20	...	11	...	...	14	...	19	25	...	23	...	126	133	18	54	9	163
5	Georgia State Industrial College..	6	41	...	21	44	...	9	69	18	...	...	53	69	75	75	...	...	...	381
6	Kentucky Normal and Industrial Institute for Colored Persons..	38	32	27	...	...	...	...	...	...	28	...	...	...	102	102	112	...	...	110
7	Southern Univ. and Agricul. and Mechanical College (Louisiana)	54	57	0	10	0	0	10	0	21	20	0	0	0	107	98	12	0	48	0
8	Princess Anne Academy (Maryland)	29	18	...	6	...	...	4	...	4	7	...	...	...	76	39	4	...	7	49
9	Alcorn Agricultural and Mechanical College (Mississippi).....	115	104	...	81	54	...	...	...	26	...	...	...	...	102	75	102	12	...	...
10	Lincoln Institute (Missouri).....	18	37	23	16	26	...	...	...	...	...	...	24	...	163	179	115	...	13	...
11	Agricul. and Mech. College for the Colored Race (North Carolina).	265	65	30	83	3	30	7	97	...	...	...	...	...	...	...	...	...	...	271
12	Colored Agricul. and Normal University (Oklahoma)	232	92	27	38	...	...	...	...	...	...	...	...	...	253	488	...	10	4	220
13	Colored Normal, Industrial, Agricul. and Mech. College (S. C.)..	27	55	53	56	...	...	9	114	30	...	40	44	16	255	205	28	14	...	418
14	Prairie View State Normal and Industrial College (Texas).....	404	80	10	60	20	15	10	...	...	10	5	25	...	565	565	50	4	8	...
15	Hampton Normal and Agricultural Institute (Virginia)	214	55	11	20	5	...	16	29	0	10	0	28	...	229	78	80	0	0	530
16	West Virginia Colored Institute..	65	22	0	12	0	0	11	16	11	13	0	0	16	130	90	0	0	3	107
	Total.....	1,795	735	205	451	158	45	102	351	164	123	45	227	119	2,333	2,211	571	136	114	2,426

The following pages contain a brief impartial description of land grant colleges having Army officers on duty as professors of military science and tactics. In reading these descriptions it should be borne in mind that the importance of the institution or character of military work cannot always be judged by the amount of space which has been devoted to it. This has been controlled in a large measure by the amount of data available. This list is arranged in the order of the alphabetical occurrence of the State in which the college or university are located.

Before entering into an account of the military departments of the individual institutions, a few extracts from that part of the catalogues from several of them selected at random, which describes the course of instruction, are offered as indicating in a general way the status of this department in land grant colleges:

University of Florida:

"In compliance with the Revised Statutes of the United States this institution maintains a course of instruction in Military Science and Tactics. The aim is to make familiar with the duties which first confront young officers, those who later, through emergency or inclination, find themselves in the military service. Experience has shown that military training not only promotes physical development and a tendency towards punctuality and system, but that it also fosters self-reliance and strengthens the principles of honor and fair dealing."

Colorado Agricultural College:

"The importance of military training, both to the individual and the state, is so important that comment thereon is here unnecessary, further than to say that the physical training and development alone are sufficient proof of its benefits. The growing demand for military instruction in connection with school work, and the fact that the State Agricultural College is the only state institution where such a department exists, has led the authorities to make the work as thorough as possible."

University of Arizona:

"It gives the young man valuable physical exercise, a healthy means of competition with his fellows, and a more intelligent military service to his country should this ever be required."

Oregon Agricultural College:

"The absolute dependence of the College upon the benefactions of the Nation and the State imposes a particular obligation on all who enjoy its privileges. The College, on its part, conforming to the spirit of law, has provided for an efficient system of military instruction, and the corps of cadets is entitled to the loyal, zealous, and true support of each and every student in the College. That it receives that support each year will be best evidenced by the standing which the corps attains among the military organizations of the higher universities and colleges."

Agricultural and Mechanical College of Texas:

"The object of the military instruction given at this College is to develop the student physically by systematic drill and exercise; to inculcate in students that unhesitating and subconscious obedience to constituted

authority so essential to good citizenship; to qualify students to be company officers of volunteers or militia."

Missouri State Military School:

"The main object of this school, established by the State Legislature in 1890, is to qualify those students of the University who enter it to be company officers of infantry, in the volunteers, the national guard, or the organized militia."

Agricultural College of Utah:

"Military drill improves the habits and manners of the student, develops him physically, and gives him that military knowledge which every citizen should possess that he may render intelligent aid to his country or state in time of need. It cultivates a manly spirit, ready and implicit obedience, respect for authority and restraint—all qualities of inestimable value to a young man in whatever calling he may choose."

Maryland Agricultural College:

"The value of such military training may be considered from two viewpoints: First, that of the United States Government; and, second, that of the individual student.

"To consider the first: The Government, depending as it does upon the citizen soldier for its Volunteer Army in times of national peril, realizes that an army, recruited from raw material as regards both officers and men, would be a most hopeless proposition in these days of quick action. If the officers were trained men they would be of inestimable value in shaping these collections of citizens into efficient armies. * * * * *

"From the viewpoint of the student, the military training makes for character—'it systematically develops the body and it educates the mind along a consistent line for the double purpose of clear thinking and effective practical work.'

" 'It exercises the character, it disciplines the mind, it inculcates habits of subordination to lawful authority, of strict personal accountability for word and act, of truth-telling, of integrity and fidelity to trust, of simplicity of life and of courage.' "

State College of Washington:

"By both the State and National laws affecting this institution, it is obligatory to give military training to all male students. The College will comply with the law. * * * *"

In War Department orders dated at Washington, June 12, 1913, the Agricultural and Mechanical College of Texas was announced as one of the ten civil institutions of learning "whose students have exhibited the greatest application and proficiency in military training and knowledge." The remaining nine "distinguished institutions," as they are known and designated, were distinctively military schools.

The following named institutions were announced as having been especially commended for the work of their military departments during the college year 1912-13:

University of California, Berkeley, Cal.
Cornell University, Ithaca, N. Y.
University of Illinois, Urbana, Ills.
Ohio State University, Columbus, Ohio.
Oregon Agricultural College, Corvallis, Oreg.
St. John's College, Annapolis, Md. (Not land-grant college.)

ALABAMA.

ALABAMA POLYTECHNIC INSTITUTE.

(Auburn, Alabama).

In 1854 the Methodist Episcopal Church (South) established at Auburn, Alabama, the East Alabama Male College. In 1872 this school was transferred to the State and became the Alabama Agricultural and Mechanical College, the State endowing it with the proceeds received from the sale of its portion of public lands received under the act of July 2, 1862 (The Morrill Act). Being a land grant institution its military department was established at the opening in 1872. The name was changed by act of the State Legislature in 1899, to the Alabama Polytechnic Institute. This was thought advisable on account of the great extension of the college and the numerous courses leading to degrees which were being offered.

In 1885, the detail of an officer of the Regular Army was first made and was continued until 1898 when the officer then on duty was recalled incident to the Spanish-American War. There has not been an Army officer on duty at this institution since. The military instructor is one of the graduates, who has been at the head of this department since the regular detail was removed. The United States law does not require that an institution have an Army officer in order to participate in the land grant funds.

In the Spanish-American War the Institute furnished the largest number of commissioned officers of any college in the United States with the exception of Cornell and Ohio State Universities. It is the oldest land grant school in the South.

All undergraduate students not physically incapacitated to bear arms are required to enroll in the military department. Senior class privates and certain irregular students may be excused at the discretion of the President. The students under military instruction number 688, and are organized as a regiment of eight companies of infantry with regimental staff, noncommissioned staff and band. Instruction is limited to the infantry arm of the service. Two hours per week is devoted to theoretical and three hours to practical instruction. The course as outlined by the War Department (See Chapter III), is followed as closely as possible.

ARIZONA.

UNIVERSITY OF ARIZONA.

(Tucson, Arizona).

The University of Arizona is located at Tucson, Arizona. It was organized in 1891 and its military department was organized in 1896.

At the present time there are 127 students taking military instruction; these are organized into a battalion of infantry of three companies with a band. The character of military instruction is largely infantry which includes actual target practice. There are three hours per week devoted to military instruction including both practical and theoretical work. The institution has been in the past classified as "Class B." Its classification in the future under the new order will no doubt be "Class C."

The course of instruction in the military department recently authorized by the faculty of the University covers all the requirements of the War Department and is calculated to equip graduates for passing examinations for commissions in the Army as second lieutenants.

ARKANSAS.

UNIVERSITY OF ARKANSAS.

(Fayetteville, Arkansas).

The University of Arkansas was organized by the General Assembly of that State March 27, 1871, under the name of "Arkansas Industrial University." It retained this name until 1899 when it was changed to the "University of Arkansas." The land occupied by the University and its various departments comprises about 120 acres. There are at present some fifteen buildings on the campus, the value of these exclusive of equipment approximates $800,000. The institution was opened January 22, 1872, with a total enrolment of 101 students.

The military department of the University has enrolled 262 undergraduates who are organized into a battalion of infantry consisting of a field, a staff, a band and four companies, conforming in every respect to the organization of a battalion of infantry of the Regular Army at peace strength. The system of military instruction embraces infantry drill and training in conformity with the requirements of the War Department (See Chapter III). Three hours per week are devoted to military instruction. In addition there is also one hour per week in military science for members of the senior class who wish to elect the work. This class at present consists of twelve students.

CADET BATTALIONS, UNIVERSITY OF CALIFORNIA, BERKELEY, CALIFORNIA.

When the military department of the University was first organized it consisted of one company of about 60 students without uniforms, arms, or equipment. The drill consisted of setting-up exercises, marching and some instruction in scouting. Captain Henry L. Burnell, a veteran of the Civil War, was the first instructor in military science and tactics. In 1874, the department was furnished the old Springfield Rifle and corresponding equipment, and the cadets wore a cadet gray uniform with brass buttons. This was under the regime of First Lieutenant E. S. Curtis, 2nd Artillery, the first Regular Army officer to be detailed at this institution. The organization of the undergraduates in the military department at this time consists of a three company battalion with a band. Some instruction is also given in dismounted artillery drill. The military department in the past has been classed as "B" but under the new order will be "C." In 1907 the equipment now on hand was furnished by the Ordnance Department, and is sufficient to equip 600 cadets. This equipment consists of U. S. Magazine Rifles, Model 1908, McKeever cartridge boxes, and waist belts.

The University is situated in Washington County in the northwestern part of the State of Arkansas, in the heart of the Ozark Mountains. The surroundings are of great natural beauty and the climate of the region is excellent.

CALIFORNIA.

UNIVERSITY OF CALIFORNIA.

(Berkeley, California).

The University of California came into existence as a result of private initiative and State and Federal action. It had its origin in the Contra Costa Academy founded by Reverend Henry Durant in 1853, and located in Oakland. This name was soon changed to "The College School" which in turn was changed to "The College of California" in 1855, when the institution was incorporated. In 1859 three professors together with three instructors were chosen as the faculty of the college and in the following year instruction was formally given with a freshman class of eight students. In 1856, a tract of one hundred and sixty acres of land, lying five miles north of Oakland, was selected as the permanent home of the institution. This spot was formally dedicated to the purposes of education in 1860, and in 1866 the name of Berkeley was given to the townsite. In order to secure the endowment resulting from the land grant act of 1862, the California legislature passed an act in 1866 establishing an Agricultural, Mining

and Mechanical Arts College. A site was selected near the grounds of the "College of California." In 1867, the College of California offered to the State its property in Oakland and its grounds in Berkeley on condition that the State should organize a University of California. In the following year the legislature accordingly passed an act organizing the University, combining the State College of Agriculture, Mining and Mechanical Arts College with the College of California. The latter discontinued its work of instruction in 1869, and gave place to the new University which opened its doors on September 23 of that year.

The military department of the University was organized in 1869. Military instruction is required of all undergraduate students excepting those excused for illness or physical disability. The course embraces practical and theoretical instruction in Infantry Drill Regulations; Field Service Regulations; Small Arms Firing Regulations; Manual of Guard Duty and other subjects prescribed by War Department Orders (Chapter III). The number of students in the military department numbers nearly 1,400. They are organized as a regiment of infantry with full complement of field, staff and line officers and a band. An equivalent of two and one-half hours practical and one-half hour theoretical instruction per week is required for two years. An elective course of one hour per week, second half-year, is offered third and fourth year students who continue the course. The work of the military department for the year 1913-14 was especially commended by the War Department.

COLORADO.

STATE AGRICULTURAL COLLEGE OF COLORADO.

(Fort Collins, Colorado).

By acts approved January 27, 1879, and April 6, 1891, the General Assembly of Colorado gave "full and complete acceptance, ratification and assent" to "all of the provisions, terms, grants, and conditions and purposes" of congressional enactments, making appropriations of land and other revenues for the support of State institutions, by which the State bound itself to maintain an institution at which instruction should be given in military tactics, agriculture, mechanic arts, the English language, economics, and the various branches of mathematical, physical and natural science.

The requirements of this contract with the federal government, both in letter and spirit, are being faithfully observed. That part of the federal enactment requiring military instruction is being carried

out by requiring all undergraduates excepting members of the senior class to participate in military instruction. The military organization consists of an infantry battalion of three companies with staff, band and signal corps. The commissioned officers of the battalion are selected from the junior class and the non-commissioned officers from the other classes. In addition to the above, military instruction covering required subjects is given to the battalion of the School of Agriculture and to one company at Fort Lewis, Colorado.

The military work in the first semester embraces the school of the soldier, company and battalion in close order. Extended order drill is taken up in the first semester and continued during the second semester. This includes skirmishes and battle exercises, advance guard, rear guard and outpost duties. The signal corps does practical work in transmitting messages by means of signal flags and heliographs. Theoretical instruction is confined to periods when the weather is unfavorable for practical work. The military band has thirty pieces. The members receive daily instruction throughout the college year by a competent band master.

CONNECTICUT.

CONNECTICUT AGRICULTURAL COLLEGE.

(Storrs, Connecticut).

The Storrs Agricultural College located at Storrs was established by act of the Connecticut General Assembly in January, 1881, and in 1890 became the Connecticut Agricultural College, receiving the land grant and Morrill funds from the federal government.

The military department of this College was organized in 1893. For the college year 1913-14, there were enrolled in this department 198 undergraduates who were organized for military instruction into a battalion of infantry consisting of three infantry companies and a drum, fife and bugle corps. The instruction given is largely that in infantry tactics, altho' there is a signal squad receiving instruction in that branch of the service. The time devoted to the study of military science and tactics is three hours weekly.

There is now (1914) under course of construction an armory building to cost approximately $60,000. This much needed facility will no doubt add greatly to the interest and efficiency of the department as the work has heretofore been cramped for the want of a proper home.

This School is placed in class "B" by the War Department inspectors.

DELAWARE.

DELAWARE COLLEGE.

(Newark, Delaware).

Delaware College was chartered in 1833, by act of the Delaware legislature, and the doors were first opened to students in May of the following year. The institution had been doing for a quarter of a century an important work, not only for Delaware, but as well for neighboring parts of Pennsylvania and Maryland, when, by a succession of misfortunes it was forced in the spring of 1859, to close its doors, but eleven years later was resuscitated, having meanwhile been designated by act of the Delaware legislature as a beneficiary of the Morrill act. In consideration of the designation and the establishment of Delaware College as the institution to be provided by the State of Delaware in accordance with the provisions of this act, "a joint and equal interest in the grounds, buildings, libraries and vested funds of the College proper," was conveyed to the State of Delaware, and equal representation upon the Board of Trustees was given to the State. Thus the College was combined under private and State ownership until the legislative session of 1913, when it came under the sole possession of the State of Delaware.

All students are required to take military instruction, exemption being given by the faculty only for reasons of physical disability or conscientious scruples. Students so excused are required to select other work as shall be deemed by the faculty equivalent to the military work omitted. The course of instruction includes Infantry Drill Regulations, Guard Duty, Field Service Regulations, Military Law, Map Reading, map making and preparation of administrative records. Theoretical instruction consists of lectures during the year by the professor of military science and tactics. Each student is required to submit a thesis on a military subject. The military organization consists of a battalion of four companies with staff, band and signal detachment.

FLORIDA.

UNIVERSITY OF FLORIDA.

(Gainesville, Florida).

The University of Florida was established in 1905 by the consolidation of several State schools. The early part of that year the State had six institutions of higher education, all depending upon it for support, which had come into existence one by one. The legislature of that State thought it best to consolidate the activities of the six into

two closely coordinated institutions. This act, known as the "Buckman Act," had as its practical effect the merging of the Florida State College at Tallahassee, the Normal School at DeFuniak Springs, the East Florida Seminary at Gainesville, the South Florida College at Bartow, the Agricultural Institute in Osceola County, and the University of Florida, into the "Florida Female College" at Tallahassee, and the "University of the State of Florida." The University occupied the buildings at Lake City until the summer of 1906 when it occupied its present site in Gainesville. At present the institution numbers eleven buildings.

The military organization consists of one battalion of three companies with a band, numbering one hundred and twenty students altogether. The instruction consists principally of infantry work, indoor rifle practice and outdoor rifle practice at two and three hundred yards. There is devoted each week to practical military exercises two and three-fourths hours and an additional two hours is given to theoretical work.

As is the case with most land grant colleges the military course is necessary for graduation. All the students are required to take the course except graduates, law, teachers, short course in Agriculture, adult specials, seniors and those physically disqualified. The latter are required to make up an equivalent amount of work in some other department.

GEORGIA.

UNIVERSITY OF GEORGIA.

(Athens, Georgia).

The University of Georgia was chartered by the General Assembly of the State, January 27, 1785. The site upon which the University now stands was selected on July 6, 1801, and the University was opened that year. For more than half a century the history of the University was the history of Georgia. Many of those who afterwards added to the distinction of the state in peace and in war received their training at this institution during this period. The University received the benefits of the funds raised from the sale of Georgia's quota of the land scrip under the Morrill act in the early part of 1872 and the trustees at once established the "Georgia State College of Agriculture and Mechanic Arts," as a coordinate department of the institution at Athens. The following institutions have been established by legislative enactments as departments or "branches" of the University and placed under general control of its Board of

Trustees: The Georgia School of Technology, at Atlanta, established in 1885; The Georgia Normal and Industrial College for Girls, at Milledgeville, established in 1889; the Georgia Industrial College for Colored Youths, near Savannah, established in 1890; the State Normal School near Athens, established 1895; the South Georgia Normal School at Valdosta, established in 1906.

Being a beneficiary of the land grant act, military instruction is regularly held in this University, upon which the attendance is compulsory for members of the freshman, sophomore, and junior classes, and the students in the one-year course in agriculture, except when excused by the surgeon of the corps of cadets. Practical instruction is given three hours each week, covering Infantry Drill Regulations, Field Service Regulations, Manual of Guard Duty and Small Arms Firing Regulations. Some instruction is given in artillery drill regulations. Theoretical instruction is given for two hours each week for commissioned and noncommissioned officers. One hour each week of theoretical instruction is required of freshmen. The students participating in the military exercises are organized into a provisional regiment of infantry consisting of two battalions of three companies each. There is also a provisional organization of field artillery.

NORTH GEORGIA AGRICULTURAL COLLEGE.

(Dahlonega, Georgia).

This College owes its origin to the act of Congress July 2, 1862. The funds derived from this act and subsequent acts of Congress making endowments to agricultural schools have been placed by the State authorities under the control of the trustees of the University, by which the North Georgia Agricultural College became a department of the University.

This institution maintains a very excellent military department, the degree of efficiency approaching very nearly that of the best distinctively military schools. There is a barracks for cadets and those occupying quarters therein are at all times under military discipline and control. None of the cadets are allowed to board or live outside of the barracks except those living with parents or very near relatives. Those living outside are required to conform to the same rules and regulations as those in the barracks. The life of the student at this institution in a manner resembles the life of a cadet at the United States Military Academy. Cadets are organized into a battalion of two companies with a band and a signal detachment. The organization of these units conforms so far as practicable to that of like units

CADET BATTALIONS UNIVERSITY OF ILLINOIS, PASSING IN REVIEW BEFORE GENERAL NELSON A. MILES, U. S. ARMY.

in the Regular Army of the United States. The band is an effective organization and has reached a high standard of efficiency. Its members are given a thorough course in music and are trained in outdoor marching and military exercises. The course of instruction, theoretical and practical, is that prescribed by the War Department, and is made as complete and thorough as consistent with the work to be performed in the collegiate departments. The same importance is attached to the work in the military department as to that in any other department.

IDAHO.

UNIVERSITY OF IDAHO.

(Moscow, Idaho).

The University of Idaho located at Moscow was founded in 1889. It received its first detail of an officer of the Army for duty as professor of military science and tactics on February 24, 1894. For the college year 1913-14 there were 150 cadets enrolled for military instruction. These are organized as a battalion of infantry of three companies with a band. Four hours per week are devoted to practical military instruction. An additional hour is devoted to theoretical work. The periods for practical exercises occur twice a week with two hours in each period.

The military department of the institution has been graded class "B" by the War Department inspectors.

During the Spanish-American War a large number of the students in the military department of the University responded to the call for volunteers and it is claimed that a larger percentage of the cadets of this institution responded to the call of their country than from any other institution of its kind in the United States.

ILLINOIS.

UNIVERSITY OF ILLINOIS.

(Urbana-Champaign, Illinois).

The University of Illinois was incorporated February 28, 1867, under the name of the Illinois Industrial University. This name was changed by the General Assembly of the State of Illinois in 1885 to the University of Illinois. The University was open to students March 2, 1868.

Military drill and the study of military science have been required of all male students since the organization of the university. After the first half year the assistant professor of mathematics, an ex-officer of

the United States Army, was also instructor of military tactics; and for the next eight years a member of the faculty, a former lieutenant in the Austrian Army, held the position of professor of bookkeeping and military tactics and instructor in German. In 1877 First Lieutenant William A. Dinwiddie, 2nd Cavalry, U. S. Army, was detailed as Commandant at the University since which time the military instruction has been under the charge of an officer of the U. S. Army.

The classification of the military work by the War Department inspectors has been Class B. Under the new classification (See Chapter III) it will come under Class C.

The students in the military department of the university are organized into a regiment of infantry of four battalions of four companies each, which is composed mainly of members of the freshmen and sophomore classes. The non-commissioned officers are all selected from the sophomore class, the lieutenants from the junior class and the captains and field officers from the senior class and graduate class. There are 1,666 cadets and 71 commissioned officers in the regiment.

In addition to the infantry organization there is an artillery detachment consisting of three officers and fifty-seven men, and a signal corps of three officers and 55 men. There is also a military band of 100 pieces, "second band" of 60 pieces, and a trumpet and drum corps of 200.

The freshmen and sophomores are required to drill one and one-half hours each week until March 15. After that date three hours each week. Freshmen also attend recitations in theoretical work one hour a week in the second semester.

The University of Illinois derives its principal support from the levy of a one-mill State tax, from fees, and from federal appropriations. Its income for the year 1913-14 for all purposes, including buildings, was approximately $3,000,000.

There is a faculty of 651 persons and a student body at the present time (1914) of 5,301. Its military department is the largest in the United States.

INDIANA.

PURDUE UNIVERSITY.

(Lafayette, Indiana).

Purdue University is named after John Purdue who was a citizen of Tippecanoe County, Indiana, who gave a large donation for the purpose of establishing the institution. This donation together with

others by citizens of this county were accepted by act of the State Legislature which also designated the institution as a beneficiary of the Morrill act. The University was founded in 1869, receiving the name of Purdue University at the time. While it bears the name of John Purdue, the institution is exclusively under State control, and in addition to receiving an income from the Federal Government is regularly supported by legislative appropriations. While the institution was founded in 1869, the first class was not entered until five years later.

The military department of the institution was organized about 1876. The number of students participating in military instruction is 850, organized as a regiment of infantry of three battalions of four companies each. The time devoted to military instruction is three hours per week consisting largely of practical exercises. The military instruction at this institution has been continuous since first organized save for a short period during and following the Spanish-American war, when the War Department withdrew the officer, as was the case with practically all other institutions of learning at that time. The military department was reorganized in April, 1902, by Captain Ira L. Reeves, U. S. A., and has been in existence continuously since.

IOWA.

STATE UNIVERSITY OF IOWA.

(Iowa City, Iowa).

An act of Congress, July 20, 1840, authorized the Secretary of the Treasury to set apart and reserve for sale lands in the territory of Iowa for the use and support of the University to be established when Iowa became a State. In 1846, Iowa was admitted to the Union. Its constitution provided that the general assembly take measures to care for the land granted and for the application of the income to support the University. The University was accordingly established by the act of the First General Assembly on February 25, 1847, and located at Iowa City. The institution was opened March, 1855, and the organization of departments began in the same year.

Instruction in military science and tactics is prescribed for all male students in the College during the first and second years of residence, except such as are especially exempted. Military discipline is maintained by the awarding of demerits for offences committed. A total of 100 demerits subjects the student to suspension from all classes in the University. Credits in the military department are given for previous military training at either of the government acade-

mies; in any branch of the Regular Service of the United States which has been terminated by honorable discharge; for service as a commissioned officer in the National Guard of Iowa; for service at any institution of learning at which a military department is maintained under an officer of the Regular Army. The military course of instruction is both practical and theoretical and includes instruction in the service manuals. The students are organized as a regiment of infantry conforming as nearly as possible with that of like organizations in the Regular Army. The regiment has a full complement of field and staff officers and a band.

KANSAS.

KANSAS STATE AGRICULTURAL COLLEGE.

(Manhattan, Kansas).

The Kansas State Agricultural College had its origin in the Bluemont Central College, an institution established at Manhattan under the control of the Methodist Episcopal Church of Kansas. The charter for this sectarian institution was approved February 9, 1858, and the corner stone was laid May 10, 1859; instruction began about a year later. In 1863, an act was passed by the legislature designating the College at Manhattan as a beneficiary of the Morrill act. The faculty of the Bluemont Central College became the first board of instruction of the Kansas State Agricultural College, when the former institution was transferred to the State and assumed its present name.

Since this College is one of the beneficiaries of the act of Congress of 1862, military tactics is included in the college curriculum. All young men of the freshman and sophomore classes are required to participate in the military course for three full hours per week. The course includes both practical and theoretical work and consists very largely of instruction in military duties pertaining to an infantry organization. The students are organized into a battalion of infantry with a band.

KENTUCKY.

STATE UNIVERSITY OF KENTUCKY.

(Lexington, Kentucky).

Under the provisions of the Morrill act, July 2, 1862, Kentucky received 330,000 acres of land. It was several years, however, after the passage of this act before the Commonwealth established an agricultural and mechanical college under its provisions. When it was established it was not placed upon an independent basis but was made

one of the colleges of Kentucky University, now Transylvania University, to which institution the annual interest of the proceeds of the Morrill act was to be given for the purpose of carrying on its operations. The connection with Kentucky University continued until 1878. A commission was appointed to recommend to the legislature of 1879 and 1880 a plan of organization for an institution, including an agricultural and mechanical college, such as the necessities of the Commonwealth required. The City of Lexington offered inducements to the State in the way of bonds and donations of land which were accepted. An act of the general assembly of the Commonwealth of Kentucky, approved March 16, 1908, changed the style and title of the institution from the "Agricultural and Mechanical College" to that of the "State University," Lexington, Kentucky.

Every male student is required to participate in the military instruction three times each week throughout his freshman and sophomore years. The standings in military work are placed on record and are requisite to graduation in every course in the University. Students who furnish satisfactory evidence of the equivalent of two years military instruction in the Regular Army, the Organized Militia, or recognized military schools, may be excused at the option of the commandant. Students physically unable to take their place in ranks are assigned to the signal detachment. The plan of instruction embraces practical and theoretical work and includes recitations and practical exercises in the Service Manuals prescribed by the War Department. The students are organized into a battalion of infantry of four companies, with a band and a signal detachment. Student officers are selected from the junior class and noncommissioned officers from the sophomore class. The officers are paid a small sum for their services.

LOUISIANA.

LOUISIANA STATE UNIVERSITY AND AGRICULTURAL AND MECHANICAL COLLEGE.

(Baton Rouge, Louisiana).

The Louisiana State University and Agricultural and Mechanical College had its origin in certain grants of land made by the United States Government in 1806, 1811, and 1827, "for the use of a seminary of learning." In 1845, the State Constitution directed the organization of the institution. In 1853, the legislature founded the Louisiana Seminary of Learning and Military Academy, and located it three miles from Alexandria, in the parish of Rapides. The institution was opened January 2, 1860, wilth Colonel William Tecumseh Sherman as superin-

tendent. Its exercises were suspended April 23, 1863, on account of the Civil War, but were resumed October 2, 1865, under the superintendency of Colonel David F. Boyd. The College building was burned in October, 1869, and on the first day of November following, the institution resumed its work in Baton Rouge, where it is now located. In 1873, the Louisiana State University and Agricultural and Mechanical College was established by act of the legislature to carry out the United States land grant act of 1862. This institution was located at Chalmette Battle Ground, but temporarily opened in New Orleans, June 1, 1874, where it remained until its merger with the University which took place on October 5, 1877.

All students who board at the University, except seniors and others who may be excused for special reasons, are required to participate in the military instruction, and to perform all other military duties. This instruction is given in both practical and theoretical courses, the former includes Infantry Drill Regulations, Small Arms Firing Regulations, Field Service Regulations, Manual of Guard Duty, and military field engineering and topography, bayonet exercises and practice marches. This course requires three hours per week. The theoretical course consists of lectures covering as completely as possible the field of military science and tactics, especially with reference to the duties of a company officer. It is taken by all cadets in their second year in the military department, except that students in the College of Engineering take it at some other time than their sophomore year. The course requires one hour per week for both terms.

In addition to the students who board at the University all students under 21 years of age who board in town, except the members of the law school and such others as may be excused for special reasons, must take the military course for two years.

MAINE.

UNIVERSITY OF MAINE.

(Orono, Maine).

The University of Maine was established in 1863 to meet the provisions of the act of Congress of 1862 (Morrill Act); the military department was commenced the same year. The institution was originally known as the State College of Agriculture and Mechanic Arts, but its name was changed to the University of Maine by act of the State legislature in 1897. In the military department there were four hundred and twenty-five students registered for the year 1913-14. The course of instruction includes Infantry Drill Regulations, practical and theoretical, to and including the school of battalion, and ceremonies.

The institution is equipped with an indoor rifle range and each student is required to take a prescribed course in gallery practice with a .22 caliber gallery rifle. Three periods of fifty minutes per week are devoted to instruction in military science and tactics.

The organization of the military department consists of a battalion of infantry of five companies and a band of twenty-six pieces. The battalion has a full complement of officers who are taken as far as possible from the junior and senior classes. The course in military science and tactics is required from members of the freshman and sophomore classes and is elective by the two upper classes.

The military classification of the institution has heretofore been under class "B" but under the provisions of the classification order embodied in Chapter III, it will come under class "C."

MARYLAND.

MARYLAND AGRICULTURAL COLLEGE.

(College Park, Maryland).

The Maryland Agricultural College had its origin in "an act to establish and endow an agricultural college in the State of Maryland," which was passed by the State Legislature in 1856. This was the first effort in the western hemisphere to use scientific investigation for the advancement of the vocation of agriculture since at that time no institution of this character was authorized in the United States. Under this charter the original college building was erected and its doors were opened to students in the fall of 1859. For three years it was conducted as a private institution. The Land Grant of 1862 (Morrill act) was formally accepted by the General Assembly of Maryland and the Maryland Agricultural College was named as a beneficiary, and the College thus became, in part, at least, a state institution, and such it is at the present time.

To meet the requirements of the Morrill act a military department is maintained. This department has attained a very high degree of efficiency and for two years was classified by the government inspectors as a "distinguished institution." But few other agricultural colleges in the United States have enjoyed this distinction, this classification usually being obtained by strictly military schools of very high order. The corps of cadets is organized as a battalion of infantry of three companies, with staff and band, the drill and administration of which conforms as far as possible to that of the Regular Army. All students other than those physically disabled and those at least 21 years of age who are not living in the dormitories are required to par-

ticipate in the military work. The instruction is both practical and theoretical, the former including the school of the soldier, squad, company and battalion in close and extended order, ceremonies of guard mounting, review and inspection, dress parade, escort of the color, advance and rear guard, patrolling and scouting, marches, target practice, visual signaling, and military engineering and topography. The theoretical instruction is given to all members of the senior class and consists of instruction in the Service Manuals including First Aid to the Injured, etc., also lectures on tactical subjects, Army Regulations, messing, camp sanitation and military law.

MASSACHUSETTS.

MASSACHUSETTS AGRICULTURAL COLLEGE.

(Amherst, Massachusetts).

The Massachusetts Agricultural College was among the first of those organized under the national land grant act of 1862 (Morrill act). The College was incorporated in 1863, and on the second of October, 1867, was formally opened to its first class of students.

A course in military science is maintained. The department of military science and tactics conducts its work in conjunction with the department of physical education and hygiene. All candidates for a degree in the four-year course must take for three years three full hours of physical training. This work must be under college supervision. At least two years of this work must be taken in the department of military science and tactics, the remainder is taken in the department of physical education. Under this arrangement the practical military instruction is given up to the Christmas recess and from the close of the Spring recess to the end of the semester each year and the corresponding courses in physical education occupy the intervening time. Military instruction consists of both practical and theoretical work, the former consisting of recitations and lectures and the latter of practical exercises in the various evolutions prescribed by the Drill Regulations. The military department also offers elective courses which consist of three hours per week, with credit of one hour, for the first semester, until the Christmas recess. There are 500 students enrolled in the military department of this College who are organized as one regiment of infantry of two battalions of four companies each, with a band. There is also a full complement of field, staff and line officers and noncommissioned officers. Military diplomas are given to those men receiving the degree of Bachelor of Science who, by their work in the department of military science

have shown themselves worthy of distinction. These diplomas recommend those receiving them for commissions in the United States Army or the militia of the several states.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY.
(Boston, Massachusetts).

On April 10, 1861, an act was passed by the General Court of Massachusetts to incorporate the Massachusetts Institute of Technology. The meeting of the Institute for organization was held April 8, 1862. The Society of Arts began its meeting on December 17, 1862. The Civil War led to the postponement of the opening of the School of Industrial Science. A preliminary session of the school was opened February 20, 1865, fifteen students attending. The regular course of instruction began October 2, 1865. By act of April 27, 1863, the Institute was constituted the Land Grant College of Mechanic Arts of the State, and was awarded one-third of the appropriation provided by the United States land grant act of July 2, 1862. The same proportion of the proceeds of subsequent National benefits has been assigned to the Institute. These grants are subject to the condition that instruction in military tactics shall be provided.

In conformity with the requirements of acts of Congress and acts of the General Court of Massachusetts the Institute provides instruction in military science and tactics. Attendance at military exercises is required of all male students who take a majority of other studies in the first year, except aliens, college graduates, students who were 21 years of age at the beginning of the term in question, or who have passed an examination in the military course or have presented records for equivalent work in other colleges. Students may be excused from taking the military work upon presentation of certificate of physical disability but are required to take in lieu thereof a course of theoretical studies in military science. Military instruction is divided into two courses, A and B. Course A consists of two hours' drill per week and one hour theoretical instruction by lectures and demonstrations in the various branches of military science and the military history and policy of the United States. An examination based on the theoretical instruction is held at the end of each term. Course B, may be the same as Course A, or may be extended to two hours per week with subjects assigned for study in addition to lectures at the option of the professor of military science and tactics. Target practice is elective and open to students of all classes so far as time and the facilities available will admit. The students

are organized into a regiment of infantry conforming as near as may be to similar organizations in the United States Army.

MICHIGAN.

MICHIGAN AGRICULTURAL COLLEGE.

(Lansing, Michigan).

The Michigan Agricultural College was established May 13, 1857, and located at Lansing, Michigan, and was the first agricultural college actually established in the United States.

The military department of this institution was organized September 1, 1884. In the fall term of 1913, there were 1,168 students in this department. These young men were organized into one full regiment of infantry conforming in all respects to a like organization in the Regular Army. In addition to this there were also detachments of engineers, ordnance, signal corps and hospital corps. The course of instruction in this department is both theoretical and practical. Theoretical instruction covers the entire Infantry Drill Regulations, Field Service Regulations, Manual of Guard Duty, Small Arms Firing Regulations, military policy and history of the United States, organization of the United States Army, camp sanitation, selection of camp sites, field engineering, personal hygiene and minor tactics. The practical work consists of infantry drill, bayonet exercises, fencing, ceremonies, first aid to the injured, hasty entrenching, hasty sketching, field engineering and minor tactics. There are also classes in visual signaling and litter drill and indoor target practice. Four hours per week are devoted to military instruction. The course is required for all male students unless physically disqualified.

MINNESOTA.

UNIVERSITY OF MINNESOTA.

(Minneapolis, Minnesota).

The legislature of Minnesota enacted a law on February 13, 1868, which gave the University its actual charter. By far the most important element of this act was that which united with the University endowment the expected income from the land grant act of 1862 (Morrill act). At the close of the college year of 1869, a small company of preparatory students were found ready for college instruction. In 1873, two students were graduated at the first commencement. The University, pursuant to the act of Congress of 1862, required that instruction be given in military science and tactics. All male students in the colleges of Science, Literature and

Arts, Engineering, Agriculture and Chemistry, are required to take military training during the first two years of their course. An encampment of cadets is held at the beginning of each year. Sophomore cadets attending the encampment are excused from all military exercises of the first semester except on Saturdays. The cadets are organized into two provisional regiments of infantry, a battery of field artillery, a detachment of hospital corps and detachment of signal corps. The number of cadets in the military department approximates 1,200. The military work conforms to the requirements of the War Department and consists of three hours per week, most of which is practical. The annual camp lasts for eight days.

MISSISSIPPI.

MISSISSIPPI AGRICULTURAL AND MECHANICAL COLLEGE.

(Agricultural College, Mississippi).

This institution owes its origin to the act of Congress of July 2, 1862. The legislature of Mississippi, by the act of February 28, 1878, divided the proceeds realized from the Morrill act equally between Alcorn Agricultural and Mechanical College and this institution. In conformity with the above acts the board of trustees located the Mississippi Agricultural and Mechanical College in Oktibbeha County one-half mile from the town of Starkville.

To meet the requirements of the act of July 2, 1862, the institution maintains a course in military science and tactics. This course includes instruction in the Service Manuals issued by the War Department. The curriculum provides for both practical and theoretical instruction. In the former either four or five hours per week are required of all cadets in their sophomore or junior year and in the latter two hours per week during three terms. The practical instruction includes daily guard mounting and posting and relieving the sentinels over the dormitory during and after meal hours. Practical instruction in target practice is also given, consisting of preliminary position and aiming drills, preliminary practice at short range and record practice at 200 and 300 yards. For the purpose of discipline and practical instruction the cadets are organized as a regiment of infantry with three battalions of four companies each, a band and bugle and drum corps, and the usual cadet officers and cadet noncommissioned officers for line and staff.

MISSOURI.

UNIVERSITY OF MISSOURI.

(Columbia, Missouri).

The legislative act establishing the University was approved February 11, 1839, and the institution was located at Columbia, Boone County, June 24, of that year. On July 4, 1840, the corner stone of the main building was laid. Courses of instruction in academic work were begun April 14, 1841.

All new students in the regular session of the University at Columbia are required to take, during their first two years of residence, one year of training (three hours a week) in the department of military science and tactics; and except in the case of persons holding appointments as cadets for two years, the same amount of training is required in the department of physical training. This does not apply to any student who has completed the equivalent of one year's work in the College of Arts and Sciences before entering the University or students who have received the equivalent of one year's work in military science and tactics in an accredited military school.

The University of Missouri has rather a unique military department. The department is known as the "Missouri State Military School," which was established by the State legislature in 1890. The corps of cadets consists of State cadets, volunteer cadets, and those cadets who enroll themselves for one year of military training under the requirements of the University. All cadets enter the same progressive course of instruction and are subject to the same rules and regulations during the period of their enrollment. The following extract from the statutes of Missouri enacted in 1909 will be of interest:

> "The Governor of Missouri shall have power to appoint ten cadets from the State at large, and each Senator and Representative of the General Assembly of Missouri three cadets from his district, on or before the first day of August of each year: Provided, that if there shall be no qualified applicants for such cadetship in any such district or districts by the first day of August in any such year, such appointment or appointments may be made from any other district in this State; And Provided, that in case of death, resignation or expulsion of any cadet from the University, the Governor, Senator or Representative who made the appointment or their successors may fill such vacancies at any time. All appointees under this section shall pass the required examination for admission to the University.
>
> "All appointments under this section shall be for the term of two years."

Cadets who are accepted for the band are matriculated in all divisions of the University free from tuition and incidental fees. Volunteer cadets are those who have taken military training required by the rules of the University and have enrolled themselves for additional military training without appointments as State cadets.

The course of instruction in the military department is progressive and complies with the requirements of the War Department and of the National Guard of Missouri. It is divided into practical and theoretical work, the former consisting of practical exercises in Infantry Drill Regulations, Small Arms Firing Regulations, Guard Duty, etc. Theoretical work consists of recitations and lectures. For the purpose of military instruction the cadets are organized into a provisional regiment of infantry of two battalions, with field, staff and band.

Under the State laws a graduate of a school in the State of Missouri, in which military instruction is regularly given by an officer of the U. S. Army detailed for that purpose, may be commissioned as second lieutenant of the National Guard of Missouri.

NEBRASKA.

UNIVERSITY OF NEBRASKA.

(Lincoln, Nebraska).

The University of Nebraska was founded by an act of the Nebraska Legislature effective February 15, 1869. The subsequent new constitution of 1875, recognized the University as established. The legislature of 1877 revised the act of 1869, which act was in turn revised by the legislature of 1909, under which act the University is at present organized and operating.

The University maintains a military department and each undergraduate man in the institution proper is required to receive military instruction during four semesters. Each man in the Agricultural High School receives military instruction during his attendance up to a total of four semesters. Excuses from military work are granted only on the grounds of conscientious scruples, physical disability, or other reasons equally valid. Students excused for conscientious scruples are required to do work in physical education equivalent in amount. The work of the military department embraces practical and theoretical instruction in infantry drill, rifle practice and music for the band men. Upon graduation students who have held cadet commissions receive appointments from the Governor of Nebraska in the State National Guard reserve list, subject to assignment to duty in the guard. The theoretical and practical work covers the course prescribed by the War Department.

NEVADA.

UNIVERSITY OF NEVADA.

(Reno, Nevada).

The University of Nevada is the head of the educational system of the State of Nevada. It is the only institution of university or college grade and equipment within the State. The Constitution of Nevada declares that "the Legislature shall encourage, by all suitable means, the promotion of intellectual, literary, scientific, mining, mechanical, agricultural, and moral improvement," and shall provide for "the establishment of a State University which shall embrace departments for agriculture, mechanic arts and mining." The University was first located at Elko, by a law approved March 7, 1873, but was moved to Reno by an Act of the Legislature approved March 7, 1885, and was formally reopened March 31, 1886. Only a preparatory school was maintained at Elko. The University began with the academic year of 1886-87.

The State Normal was authorized by an Act of the Legislature approved February 7, 1887; and was established and opened for students in September, 1887.

The University has a well organized military department. The students receiving military instruction are designated "cadets." Every cadet who is a candidate for graduation from any of the schools of the University is required to complete the prescribed military course, aggregating eight units. The course follows closely that outlined by the War Department, and includes both practical and theoretical instruction in infantry duties. The cadets are organized as a battalion of infantry with a band.

NEW HAMPSHIRE.

NEW HAMPSHIRE COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

(Durham, New Hampshire).

The New Hampshire College of Agriculture and Mechanic Arts was incorporated by the State legislature in 1866 under the provisions of the act of Congress approved July 2, 1862 (The Morrill Act).

The military department of this institution was first organized September 1, 1894, and now consists of a band and a battalion of infantry of four companies, totaling 265 men. Three hours a week for three years are devoted to practical instruction in infantry training which includes gallery and range practice, while one hour a week for two years is devoted to the theoretical instruction required by War Department orders.

The military department has been heretofore classed as "B" by the War Department inspectors but will come under classification "C" (See Chapter III) of the more recent order of the War Department.

From 1866 to 1893 the college was located at Hanover, New Hampshire, but since the latter date it has been at Durham. This change in location was due to the fact that Benjamin Thompson, a resident of Durham, bequeathed to the college at his death, practically his whole estate, consisting of a large area of land and an endowment amounting to about $80,000, with the proviso that the college be located at Durham. This condition was accepted.

NEW JERSEY.

RUTGERS COLLEGE.

(New Brunswick, New Jersey).

Rutgers College, located at New Brunswick, New Jersey, was founded as Queen's College by Charter from George III on November 10, 1766. In 1825 its name was changed to Rutgers College. After the passing of the land grant act in 1862 (The Morrill Act), when the College was nearly 100 years old, the trustees organized the Rutgers Scientific School, and in 1864 the legislature of New Jersey designated it as the State College for the Benefit of Agriculture and Mechanic Arts.

The military department of Rutgers College was organized under the terms of the United States act on which the State College was re-chartered. This department now consists of approximately 325 students who are organized into a battalion of infantry, the organization conforming to that which obtains in the United States Army in time of peace. The military instruction is chiefly infantry, with signal corps, target practice and other practical work. The time devoted to practical military instruction is two hours each week for the four full years of the undergraduate course. Class work in military science maintains for two hours a week during a half year and one hour a week for a second half year. The work is well sustained and is regarded as a desirable and valuable part of the college training. The authorities of the College commend and emphasize it and this sympathy and encouragement is evidenced in the efficiency of the department.

The classification of the military department has been "Class B" and no doubt will come under "Class C" in applying the classification as now provided for and described in Chapter III.

NEW MEXICO.

NEW MEXICO COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

(State College, New Mexico).

This institution was founded in 1890. Its military department was first actively organized in 1903. There are 150 men in the battalion which consists of three companies. Instruction in infantry only is given. The time devoted to the military work is three hours of practical and one hour of theoretical per week.

This institution is classified by the United States Inspectors as "Class B." (See Appendix V).

NEW YORK.

CORNELL UNIVERSITY.

(Ithaca, New York).

Cornell University, at Ithaca, New York, was founded in 1868, and its military department came into existence the same year.

During the year 1913-14, there were enrolled in the military department 950 students. These young men are organized into one regiment of infantry of three battalions, each battalion consisting of three companies. There is also a band and one company of signal corps.

The character of instruction given in the military department is largely infantry with specially selected men in the signal corps. To this instruction is given three hours practical exercises per week during that part of the year when outdoor movements may be conducted. During the winter season when it is impracticable to do outdoor work, exercises are divided into one hour practical and two hours theoretical. The theoretical instruction usually covers a course of four months.

The Army Inspection Board for the year 1913-14, gave the military department of Cornell especial commendation for the character of its work.

The institution has excellent indoor and outdoor rifle practice facilities and each cadet is required to qualify in marksmanship.

Until further facilities can be secured Cornell has the permission of the War Department to require but one year of military training, therefore, in the freshman year it is required and with the other classes it is optional. There are about 150 men electing the course. There is a bill pending in the New York legislature making provisions for an appropriation for the construction of a large drill hall suitable for a regiment of 1,500 men, and its prospects for passing are

FIRST REGIMENT OF INFANTRY, CORNELL UNIVERSITY CORPS OF CADETS, ITHACA, N. Y.

excellent. When the facilities which this bill provides for have been secured students of the sophomore class will also be required to participate in the instruction.

The commissioned officers of the corps are paid by the University and are taken from students of the sophomore, junior and senior years. Their annual pay is as follows: Student Colonels, $250; Student Majors, $225; Student Captains, $200; Student First Lieutenants, $125; Student Second Lieutenants, $100. Field officers and captains are also assistant instructors in the military department. As may be seen from this liberal allowance of pay to the student officers, the Trustees and Faculty are very generous with the military department and support it in every way possible.

The institution in the past years has been classed by the War Department inspectors as class "B."

NORTH CAROLINA.

NORTH CAROLINA COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

(West Raleigh, North Carolina).

This institution had its birth in a bill which passed the State Legislature and was approved March 7, 1885. The law provided that proposals be received from towns and cities of the State and that the school should be located in the town or city offering the most inducements. The proposition offered by the City of Raleigh was accepted. The school provided for by the original act was by further action of the Legislature of 1887 changed into an Agricultural and Mechanical College, and the revenues due the State from the Morrill act were given to this newly created college. The first building was completed in 1889 and the doors were opened for students in October of that year.

A course in military science and tactics is very systematically laid out, and includes progressive instruction in the Service Manuals furnished by the War Department. Male members of all classes except seniors are required to take the course. Seniors have choice of taking the military course prescribed for their class, or electing three extra hours in some other subject. The students are organized into a battalion of infantry of six companies, with a battalion staff and a band. There are 350 students in the military department. In addition to the infantry battalion a signal corps is maintained.

NORTH DAKOTA.

NORTH DAKOTA AGRICULTURAL COLLEGE.

(Fargo, North Dakota).

The North Dakota Agricultural College was located at Fargo in 1889, according to the provisions of the State constitution. On March 2, 1890, the first legislative assembly of the newly organized State established the institution under the provisions of the Morrill Act of July, 1862. The College was actually organized for educational work October 15, 1890, and the first work was carried on in rented quarters in the City of Fargo and in rooms rented from Fargo College.

All male students entering the College courses are required to take military instruction for six terms. An exception to this is made in the case of students who have completed six terms of military instruction in the Agricultural and Manual Training High School or five terms in the Industrial courses. Those excepted are required to take military work for only three terms in the College. Each term of military instruction counts as two hours toward graduation. Service in the National Guard is also recognized by giving six hours' credit for each year's service including an encampment. Students who have finished the required military course are given an opportunity to volunteer for additional work in this department for which they are given credits toward graduation of two hours for each term. In the selection of commissioned officers, other things being equal, preference is given to such volunteers. The North Dakota Agricultural College is one of a number of state institutions which fail to differentiate between military instruction and athletics as is evidenced by the following rule: "The same regulations will apply to the first band, service in which is considered equivalent to military drill, and to first squads in football, basketball and baseball. However, a student will be required to drill until his position in the squad is assured."

As is usual in other land grant colleges, students may be excused from military instruction because of physical disability. Many institutions require students excused for this reason to elect an equivalent in some other course. This, however, does not appear to be the case with the North Dakota Agricultural College. The course of instruction in the military department embraces theoretical and practical work. The text books in use include Army Regulations, Infantry Drill Regulations, Small Arms Firing Regulations, Field Ser-

THE UNIVERSITY REGIMENT OF CADETS, OHIO STATE UNIVERSITY, COLUMBUS, OHIO.

vice Regulations, Manual of Guard Duty and First Aid to the Injured. Practical instruction includes target practice.

OHIO.

OHIO STATE UNIVERSITY.

(Columbus, Ohio).

In November, 1862, Governor Tod brought to the attention of the State Board of Agriculture of Ohio the provisions of the Morrill act of July 2, of that year. On February 9, 1864, a bill was introduced and passed by the State Legislature accepting this grant and pledged the faith of the State to the performance of all the conditions and provisions which it contained. In 1866, an act was passed which provided for the establishment of the Ohio Agricultural and Mechanical College, but the provisions were not carried into effect, and a second act was passed in 1870, providing for the establishment of a like institution and locating it at Columbus. The institution was open for the reception of students on the 17th of September, 1873. It was reorganized and the name changed to that which it now bears by act of the State legislature of 1878.

Under the law of Congress endowing the University, as is the case with all land grant colleges, it is required that instruction shall be given in military science and tactics, and the trustees have directed that all male students, except those in the College of Law and such others as may be especially excused, shall render two years of cadet service. The course of military instruction is both practical and theoretical, and is given by means of systematic drill, supplemented by lectures and recitations, and is so arranged as to occupy four hours per week throughout the year. For the purpose of drill, all students enrolled in the department are organized into a regiment composed of four battalions of four companies each, a band, and a trumpet corps. Each battalion has its own staff officers. The total number of men under arms averages about 1,200. Service in the band is credited as military service. The appointment of cadet officers during the second year of service is for excellence in their work. These officers may continue to serve during the third and fourth years if they wish, and if they do are given a small compensation at the end of each year's satisfactory service. Members of the band who volunteer for service after having completed their two years required duty also receive a small compensation, and receive instruction during the four winter months from a competent band master.

The theoretical instruction includes a systematic and progressive course in Infantry Drill Regulations of the United States Army, the organization and administration of the United States Army, and elementary principles governing the art of war.

The military department of Ohio State University has the distinction of having had continuously on duty with it since 1900 the same officer of the Army detailed by the War Department. This officer, Captain George L. Converse, U. S. Army, has the distinction of being the dean of Professors of Military Science and Tactics of the United States.

OKLAHOMA.

OKLAHOMA AGRICULTURAL COLLEGE.

(Stillwater, Oklahoma).

The site of the Agricultural and Mechanical College in Oklahoma is at Stillwater in Payne County. This college owes its origin to the bill fathered by the United States Senator Morrill of Vermont, in 1862 (Morrill Act). The first legislature of the territory of Oklahoma adopted a resolution assenting to and accepting the provisions of Congress and established the Oklahoma Agricultural and Mechanical College at its present location at Stillwater in December, 1890. The College was organized in 1891.

This institution being one of the beneficiaries of the act of Congress of 1862, instruction in military tactics is made compulsory. The course of instruction is made to conform strictly to the provisions of War Department general orders. In compliance with the requirements of that order, the course is both practical and theoretical, and is applied as follows: Practical: Infantry Drill Regulations through the school of the regiment, in close and extended order; advance and rear guards and outposts; marches, map making and entrenchments; ceremonies of review, inspection, parades, escort of the color, guard mounting, etc.; gallery and target practice; field problems with blank ammunition. Theoretical: Infantry Drill Regulations United States Army; Small Arms Firing Regulations (1913); Field Service Regulations; Manual of Guard Duty; outline of first aid to the injured, and lectures on various military topics. All students not physically disqualified are required to take the military course. During the fall term there are three practical exercises per week, while the spring and winter terms are devoted to theoretical instruction. Satisfactory completion of the prescribed work is required before graduation. Students entering from other institutions where officers of the Army are detailed are given credit for theoretical

THE CORPS OF CADETS, OREGON AGRICULTURAL COLLEGE, CORVALLIS, OREGON.

work for which they hold certificates, provided they are not afterwards found deficient in the practical work of the subject. The cadets are organized into a regiment consisting of two battalions of four companies each with full complement of field, staff and line officers and noncommissioned officers and a band. Officers whose services have been satisfactory are given a genuine parchment commission on their graduation.

OREGON.

OREGON AGRICULTURAL COLLEGE.

(Corvallis, Oregon).

The Oregon Agricultural College, located at Corvallis, Oregon, was organized as a private institution in 1868. It was reorganized as the State Agricultural College in 1885 and its military department was established in September, 1889. At the present time there are enrolled in this department between 900 and 1,000 students; of this number 300 took the theoretical work during the first semester of 1913-14, the majority of this number being also enrolled in the practical work of the department. The students are organized into a full regiment of infantry of twelve companies and a band, together with a signal corps and a hospital corps. Military instruction is largely confined to infantry exercises. Students who are temporarily disabled are given instruction in the work of the hospital corps and those permanently disabled are enrolled in the signal corps. All students devote four hours a week to military drill; juniors and seniors devote an additional hour to theoretical instruction in military science. Among other military activities is a rifle club which was organized in the fall of 1913.

The classification of the military department has been "Class B" but will come under "Class C" in the future.

PENNSYLVANIA.

PENNSYLVANIA STATE COLLEGE.

(State College, Pennsylvania).

The Pennsylvania State College was formally established under the act of Congress of July 2, 1862, together with a corresponding act of the General Assembly of Pennsylvania passed April 1, 1863. However, action looking to such an institution had been taken as early as 1855 when a charter was secured from the legislature of Pennsylvania for a "Farmers' High School." This organization selected a site in Center County and one wing of the building (now

Old Main) was begun and the school was opened in February, 1859, offering a course of study leading only to the occupation of farming. A class of eleven was graduated in December, 1861, being probably the first class graduated from a purely agricultural institution in the United States. On the following May, the name of the School was changed to "The Agricultural College of Pennsylvania."

The military department of this institution was organized in 1865 to meet the requirements of the Morrill act. Every male student of the freshman, sophomore and special classes except members of the athletic squads whose names have been certified to the commandant of cadets, are required to take the military course. The instruction is both theoretical and practical, covering as much of the rudiments of infantry instruction as time will permit. Theoretical instruction is confined to the freshman year in Infantry Drill Regulations and a course for commissioned officers in Field Service Regulations. Both courses are supplemented by lectures. Theoretical instruction is also given the sophomore class in firing regulations for small arms in conjunction with the practical work. Practical instruction, given in the Autumn and Spring months includes the following: Infantry Drill Regulations, including the schools of the soldier, squad, company, battalion and regiment in close and extended order; communications; orders; combat; reconnaisance; fire superiority; deployment; attack; defense; meeting engagements; patrols; advance guards; rear guards; flank guards; outposts, and ceremonies of dress parades, reviews and inspections. The sophomore class receives practical instruction in gallery practice. Theoretical instruction is also given in military map reading and map making.

The number of students enrolled in the military department approximates 1,300. These young men are organized into a regiment of infantry with a band and a full complement of commissioned and noncommissioned officers. The number of hours per week devoted to military instruction is one to theoretical and five to practical exercises.

PORTO RICO.

UNIVERSITY OF PORTO RICO.

(Rio Piedras, Porto Rico).

The University of Porto Rico was established by act of the Insular Legislature in March, 1903, and located at Rio Piedras, seven miles from San Juan, the capital of the Island.

CADETS OF UNIVERSITY OF PORTO RICO, SAN JUAN, P. R.

Altho' a young institution the University has developed very rapidly and is now ready to offer unusual advantages in preparing its students for business or the professions, if a knowledge of both English and Spanish are to his advantage. It is in fact fast developing into a Pan-American university. The following named departments have been organized and are in operation: Normal, Liberal Arts, Law, Pharmacy, Agriculture and Mechanic Arts. The College of Agriculture and Mechanic Arts has been located at Mayaguez since 1912.

The military department was organized February 16, 1910, in the University at Rio Piedras, and in the College of Agriculture at Mayaguez in 1912. All ablebodied male students who enroll in the institution are required to take the course in military science and tactics. At Rio Piedras the students are organized into a battalion of infantry of four companies with a band, and at the College of Agriculture at Mayaguez the organization consists of a battalion of three companies with a band. The professor of military science and tactics has his headquarters at Rio Piedras but makes frequent visits to the Agricultural College.

Three hours per week are devoted to military instruction, most of which consists of practical exercises. The equipment consists of U. S. Magazine Carbines, Model 1899, remodeled, with bayonets, belts, cartridge boxes, canteens and haversacks. The students take kindly to military training and are very apt pupils. An encampment of about three weeks was instituted just before the opening of the school year of 1913-14, which was attended by the officers and noncommissioned officers of both battalions, and from which they derived much benefit and pleasure.

Eduardo Nagron, a graduate of the Normal department of the institution in 1912, who was student major of the battalion that year, was the first of the students to distinguish himself along military lines. He has accepted a commission as lieutenant in the Philippine Constabulary and is now stationed in the Philippine Islands. In a letter to the author dated February 16, 1914, First Lieutenant Bates Tucker, U. S. A., the professor of military science and tactics, in commenting on the growth of the University said: "We are building up a school here of which we are proud and we feel that if the advantages were known we would have many more students from the states."

RHODE ISLAND.

RHODE ISLAND STATE COLLEGE.

(Kingston, Rhode Island).

The Rhode Island State College is one of the so-called "land grant" colleges. It was founded in 1888 as an agricultural school and was incorporated as a college in 1892, in which year its military department was also organized.

Being a beneficiary of the Morrill act, the Rhode Island State College maintains a military department, in which all male students are required to participate during their attendance at the college unless excused by reason of physicial disability. They may, however, be excused after service during four collegiate years. Credit is given for this work on the same basis and under the same regulations as in any other department. The instruction consists of both theoretical and practical work, the former including recitations in the service manuals furnished by the War Department and lectures by the commandant. Theoretical instruction is also given in the preparation of reports, returns, orders, in the method of correspondence, and, in general, in the duties of company and battalion officers. Practical instruction embraces practical exercises in Infantry Drill Regulations; Small Arms Firing Regulations; Field Service Regulations; duties of advance, rear and flank guards, Manual of Guard Duty, etc. The number of students participating in military instruction approximates 200. These young men are organized into a battalion of infantry of four companies, with staff and band. A number of changes have recently taken place in the military department under the regime of the present professor of military science and tactics, Captain W. E. Dove, United States Army, and the efficiency of the department has shown a marked increase.

SOUTH CAROLINA.

CLEMSON AGRICULTURAL COLLEGE.

(Clemson College, South Carolina).

The Clemson Agricultural College was founded in 1892 and has been designated as a beneficiary of the Morrill act.

The military department of this institution was organized in 1892. Its classification in 1913 by the War Department inspectors placed in class "B A," which classification means that the military department has attained the state of efficiency required for strictly military schools and colleges of Class A (See Appendix V)—the highest classification excepting only the "distinguished" schools.

There are approximately 800 students in the military department of this College. This body of young men is organized into a regiment of twelve companies of infantry with a band. The character of instruction is infantry in all of its branches, to which three hours practical and one hour theoretical per week are devoted. The following extract from the Regulations for the Government of Cadets will explain in part the organization and mode of government of the cadet corps:

"The Commandant of Cadets, under the President of the College, has immediate command and control of the corps of cadets in all that pertains to its organization, drill, military police, discipline and administration. He is charged with the instruction of the cadets in the theoretical military course and in all practical military exercises. He will prescribe the order in which the furniture, bedding, books, clothing, equipments, etc., shall be arranged throughout the barracks, and shall, in person make a minute and thorough inspection of the rooms, furniture, arms and accoutrements, etc., of the cadets at least once each week, and make a report thereon to the President."

SOUTH DAKOTA.

SOUTH DAKOTA STATE COLLEGE.

(Brookings, South Dakota).

An act of the Territorial Legislature of the then territory of South Dakota approved February 21, 1881, provided that an agricultural college for the territory be established at Brookings. The legislature of 1883 provided for the erection of the first building, which was opened for use September 24, 1884. The Enabling Act approved February 22, 1889, admitting South Dakota into the Union provided that 120,000 acres of land be granted for the use and support of the Agricultural College, as provided in the acts of Congress making donations of land for such purposes (The Morrill Act). An additional 40,000 acres was also granted to the College, giving it a total land grant of 160,000 acres. The State Legislature of 1907, changed the name of the institution from "The Agricultural College of South Dakota," to "The State College of Agriculture and Mechanic Arts."

The national law organizing and endowing this institution required that military science shall form part of the instruction offered. Pursuant to the provisions of this law all male students taking regular work in the College are required to do certain work in this department, unless excused because of physical disability or some other valid reason. The work of the department is conducted in accordance with the War Department orders promulgated pursuant to acts of Congress. Instruction in military science and tactics is both

practical and theoretical. Practical work consists of instruction in infantry tactics including firing regulations for small arms, field service regulations, guard duty, etc., to which three hours a week are devoted. The theoretical work consists of recitations on the above subjects and lectures by the commandant on various military topics. To this part of the course is given one hour per week for one semester. For sophomores the study of Elements in Military Science requires one hour a week for the second semester. Members of the two under classes are required to take both practical and theoretical courses. The students in the Corps of Cadets are organized for the purpose of drill and administration as an infantry battalion with a band. The appointments and promotions of commissioned and noncommissioned officers are made in accordance with merit.

TENNESSEE.

UNIVERSITY OF TENNESSEE.

(Knoxville, Tennessee).

The University of Tennessee located at Knoxville, was chartered under its maiden name of "Blount College" by the Legislature of the "Territory South of the Ohio River," on September 10, 1794. In 1807 it transferred its corporate funds, property, and effects to "East Tennessee College" which had at that time just received its charter from the State of Tennessee. The site of the University was purchased in 1826, and in 1840 the name of the College was changed by act of the legislature to "East Tennessee University." During the presidency of Doctor Thomas Humes in 1869, the General Assembly of Tennessee passed an act establishing as a department of the University an Agricultural and Mechanical College, and transferred to the University for the use of that College the endowment resulting from the sale of land scrip received by that State from the National Govenment as a result of the Morrill Act of 1862. By an act of the State Legislature in 1879, the name of "East Tennessee University" was changed, and the institution has borne its present name, "The University of Tennessee," since that time.

There are at the present time 200 students in the military department of this institution. This department was organized in 1869. The students taking military instruction are organized into a battalion of infantry of three companies with a band. The instruction is of that nature which is generally advanced for the development of the infantry soldier, and consists of both practical and theoretical work for five hours per week. Under the new method of military

COMPANY "G" OF THE CADET CORPS, AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS,
COLLEGE STATION, TEXAS.

classification by the War Department inspectors this institution will take its place under class "C."

TEXAS.

AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS.

(College Station, Texas).

The Agricultural and Mechanical College of Texas, like many of the land grant institutions in other states of the Union, owes its origin to the act of Congress approved July 2, 1862. This act required that its provisions should be formally accepted by the respective states. By joint resolution approved November 1st, 1866, the Legislature of Texas accepted the provisions of the Congressional legislation. In an act approved April 17, 1871, the legislature provided for the establishment of an Agricultural and Mechanical College which was located in Brazos County. The Constitutional Convention of 1876 constituted the college a branch of the University of Texas, and in accordance with the terms of the Federal legislation, designated it as an institution for instruction in agriculture and mechanic arts and the natural sciences. The College was formally opened for the reception of students October 4, 1876.

The military department of this institution was organized in 1876, coincident with the opening of the departments. The military feature of the institution, made necessary by the acceptance of the Federal grants, is an important adjunct to the other work of the College. The discipline of the institution follows very closely the military method. Students are not allowed to leave the college grounds either to visit neighboring towns, or their homes without first securing a furlough from the commandant of cadets or from the president. The Cadet Corps, which includes all students in attendance at the College, is organized as a regiment of infantry consisting of a band and three battalions of four companies each. The number of students in the regiment is slightly less than 800. All military instruction is under the immediate charge of the commandant, an officer of the United States Army. Officers and noncommissioned officers of the regiment are selected from the senior, junior and sophomore classes. The course of instruction embraces very largely the duties of infantry troops and covers those things described in the Service Manuals. The instruction is divided into practical and theoretical exercises, the latter including lectures on military topics. Four hours and thirty minutes each week are devoted to practical instruction and approximately twelve hours per week to theoretical work.

The College has been classified by the War Department as a "distinguished institution" and is one of the few agricultural schools having received this mark of high merit.

UTAH.

AGRICULTURAL COLLEGE OF UTAH.

(Logan, Utah).

The Agricultural College of Utah was founded on March 8, 1888, when the legislative assembly of the State of Utah accepted the terms of the national law passed by Congress on July 2, 1862. In September, 1890, the institution was first opened for the admission of students.

Being a land grant institution instruction in military tactics is required. All ablebodied male students of the College are required to enroll in the military department during three years of their course. The satisfactory completion of both the practical and theoretical work prescribed for any one year entitles the student to two credits toward graduation. The military body of the College consists of one battalion of three companies with a band of twenty-eight instruments. There are five fifty-minute periods of instruction each week throughout the college year. The military work is divided into theoretical and practical, the greater part of the time being given to the latter. Practical exercises consist of infantry drill, instructions in marching, placing of outposts, advance guards, and in combat exercises. Instuction is also given in position, sighting and aiming drills; indoor and outdoor target practice.

VERMONT.

UNIVERSITY OF VERMONT.

(Burlington, Vermont).

"An Act for the purpose of founding a university at Burlington" was passed by the Legislature of Vermont, November 2, 1791. This act provided that the institution be known and designated by the style of the "University of Vermont." Under the provisions of the Morrill act of July 2, 1862, the Legislature of Vermont chartered in that year the "Vermont Agricultural College." This failed to receive the support necessary to put it in operation, and was by an act approved November 6, 1865, incorporated with the University of Vermont into one institution under the name of "The University of Vermont and State Agricultural College." The University is the oldest State institution in the United States.

CADET BATTALION, BAND, AND COMMANDANT AND CADET OFFICERS,
UNIVERSITY OF VERMONT, BURLINGTON, VT.

The University having been officially designated as a beneficiary of the revenues derived from the Morrill act, maintains a military department to meet that part of the requirements of this act which pertains to military instruction. All male students excepting those in the College of Medicine, are required to take the military course, unless excused because of physical disability, for their freshman and sophomore years. The time devoted to military exercises is three hours per week, one of which is given to theoretical work consisting of recitations and lectures and the other two hours to practical work. The course comprises that prescribed by the War Department and is confined largely to instruction in the Service Manuals furnished by the Government. The course in detail is as follows:

FIRST YEAR—PRACTICAL.

Infantry Instruction.—1. Orders, Commands and Signals. 2. School of the Soldier. 3. School of the Squad. 4. School of the Company; (a) Close Order; (b) Extended Order; (c) Fire. 5. The Battalion; (a) Close Order; (b) Combat Principles. 6. Ceremonies; (a) Reviews; (b) Parades. 7. Inspections. 8. Honors and Salutes.

Small Arms Firing.—1. Sighting Exercises. 2. Position and Aiming Drill. 3. Gallery Practice. 4. Deflection and Elevation Instruction. 5. Estimating Distances. 6. Individual Known Distance Firing—instruction and record practice.

Manual of Guard Duty.—1. Guard Mounting. 2. Posting and Relieving Sentries.

FIRST YEAR—LECTURES AND THEORETICAL INSTRUCTION.

1. Benefits to the Nation, State, College and Student of Military Training. 2. Military Policy of the United States. 3. Military Rank, Discipline, and Courtesies—history and purpose. 4. History and Development of Military Fire Arms. 5. Nomenclature of the Rifle. 6. Care and Preservation of the Rifle. 7. Sight Adjustments for Varying Conditions of Light and Wind, and Other Influences on a Bullet in Flight. 8. Military Organization. 9. The Service of Information. 10. Military Orders. 11. Service of Security. 12. Marches and Convoys. 13. Shelter (housing) of Troops. 14. Service of Supply. 15. Transportation. 16. Combats. 17. Sanitary Service. 18. Laws of War (Instruction for the Government of the Armies of the United States in Times of War).

SECOND YEAR—PRACTICAL.

Infantry Instruction.—Review of First Year's course.

Combat.—1. Leadership; (a) General considerations; (b) Teamwork; (c) Orders; (d) Communication. 2. Combat Reconnaissance. 3. Fire Superiority; (a) Purpose and nature; (b) Fire direction and control. 4. Deployment. 5. Attack; (a) Deployment for the attack; (b) Advancing the attack; (c) The fire attack; (d) The charge; (e) Pursuit; (f) Attack of fortifications; (g) Holding Attack. 6. Defense; (a) Positions and intrenchments; (b) Deployment for defense; (c) Counter attack; (d) Delaying action. 7. Meeting Engagements. 8. Withdrawal from Action. 9. Miscellaneous; (a) Intrenchments; (b) Minor warfare; (c) Patrols; (d) Marches; (e) Protection of the march; (f) Camps; (g) Camp sanitation; (h) Protection of camp or bivouac.

Small Arms Firing.—Review of First Year's work.

Field Service Regulations.—1. Service of Information. 2. Service of Security. 3. Marches and Convoys.

Manual of Guard Duty.—1. Guard Mounting. 2. Posting and relieving of Sentries. 3. Compliments from Guards. 4. Guard Reports.

SECOND YEAR—LECTURES AND THEORETICAL INSTRUCTION.

Review of First Year's Lecture Course.—1. Customs of the Military Service. 2. Duties of Company Officers of Infantry, Volunteers and Militia. 3. Military Training and Its Relation to Good Citizenship. 4. The Citizen's Duty to His Country in Times of War. 5. Military Justice—how administered. 6. Summary of Army Regulations. 7. The Articles of War.

Military science and tactics is required of all male Freshmen and Sophomores in colleges other than that of Medicine, and including male special students.

The number of students participating in military instruction is slightly less than 250. These young men are organized into a battalion of infantry with full complement of commissioned and noncommissioned officers and a band. There is also a signal detachment composed of students who have had military experience before entering the University, and of those who have shown special aptitude in the infantry instruction. A hospital detachment composed of 27 men with an organization similar to that of a sanitary detachment for a regiment of infantry is fully organized and under the immediate direction of a member of the faculty of the Medical College. The young men composing this detachment are students who are taking the Pre-Medic course. They are also required to take the practical course in infantry instruction. At the beginning of the college year of 1912-13, a system of awarding commissions to the student officers and warrants to noncommissioned officers was instituted, also certificates to those who have finished the course showing the degree of efficiency acquired during the two years' instruction. These forms are given below. The commissioned officers are selected from the junior and senior classes, and receive a small compensation for their service:

University of Vermont and State Agricultural College

IRA L. REEVES, Captain United States Army,
Professor of Military Science and Tactics, and Commandant.

*To*_____*Greeting:*

Reposing special trust and confidence in your Ability, Courage and Good Conduct, I do by virtue of these presents and the authority of Paragraph 23, General Orders No. 70, War Department, series 1913, and with the approval of President Guy Potter Benton of University of Vermont and State Agricultural College,

*Commission you*_____*of*_____

University Infantry Battalion.

You will therefore carefully and diligently discharge the said duty by doing and performing every matter and thing thereunto relating. You will observe and follow such orders and directions as you shall from time to time receive from the President of the University or the Commandant for the time being, or any other superior officer according to Military Discipline and the Rules and Regulations Governing the Military Department. All Officers and Soldiers under your command are to take notice thereof and yield due obedience to your orders in your said capacity in pursuance of the trust in you imposed.

In Testimony Whereof *the seal of the University is hereunto affixed by authority and with the approval of President Guy Potter Benton.*

*Given under my hand at Burlington, Vermont, this*_____*day of*_____

*in the year of our Lord Christ One Thousand Nine Hundred and*_____*and of the independence of the United States the one hundred and thirty*

Approved:

_____
President University of Vermont and State Agricultural College

_____
Captain United States Army, Commandant.

University of Vermont and State Agricultural College

IRA L. REEVES, Captain United States Army,
Professor of Military Science and Tactics, and Commandant.

To _____ *Greeting:*

Reposing special trust and confidence in your Ability, Courage and Good Conduct, I do by virtue of these presents and the authority of Paragraph 23, General Orders No. 70, War Department, series 1913, and with the approval of President Guy Potter Benton of University of Vermont and State Agricultural College,

Appoint you _____ *of* _____

University Infantry Battalion.

You will therefore carefully and diligently discharge the said duty by doing and performing every matter and thing thereunto relating. You will observe and follow such orders and directions as you shall from time to time receive from the President of the University or the Commandant for the time being, or any other superior officer according to Military Discipline and the Rules and Regulations Governing the Military Department. All Non-Commissioned Officers and Privates under your command are to take notice thereof and yield due obedience to your orders in your said capacity in pursuance of the trust in you imposed.

In Testimony Whereof *the seal of the University is hereunto affixed by authority and with the approval of President Guy Potter Benton.*

Given under my hand at Burlington, Vermont, this _____ *day of* _____

in the year of our Lord Christ One Thousand Nine Hundred and _____ *and of the independence of the United States the one hundred and thirty*

Approved:

_____
President University of Vermont and State Agricultural College

_____
Captain United States Army, Commandant.

UNIVERSITY OF VERMONT

and State Agricultural College

To all whom it may concern.

Know ye, That_____

of_____ a_____ of_____

University Infantry Battalion, who was enrolled in the Department of Military Science and Tactics of the University of Vermont and State Agricultural College on_____ 191__, has completed the course prescribed by paragraphs 27 and 28, General Orders No. 231, War Department, Washington, Nov. 16, 1909, and is hereby Honorably Discharged from further service with the Battalion.

MILITARY RECORD AND FINAL GRADES

Promotions:_____

Practical work_____ Written work_____

Attendance_____ Deportment_____

Given under my hand at Burlington, Vermont, this_____ day of _____ in the year of our Lord one thousand nine hundred and_____.

_____

Captain United States Army,
Professor of Military Science
and Tactics and Commandant

VIRGINIA.

VIRGINIA POLYTECHNIC INSTITUTE.

(Blacksburg, Virginia.).

The General Assembly of Virginia, in 1872, accepted the grant of land made by the Morrill Act in 1862, and the institution known as the Virginia Agricultural and Mechanical College was opened to students in the fall of the former year. In 1896, the General Assembly of Virginia changed the name to that it now bears, the Virginia Polytechnic Institute.

Having accepted the appropriations of congress and the requirements of the act of July 2, 1862, instruction in military tactics is one of the required subjects. This instruction is both theoretical and practical. There are about 400 students in the military department. For practical work the students are organized into a battalion of six companies with commissioned and noncommissioned staff and a band. Commissioned officers in the battalion are taken from the senior class, sergeants from the junior class and corporals from the sophomore class. In making appointments preference is always given to students who are proficient in their other class work, who manifest aptitude for the military work, and have the fewest number of demerits. The practical instruction includes infantry drills in the school of the soldier, squad, company and battalion; target practice; band practice; trumpet practice; battalion parade, inspections; reviews; guard duty, and general military discipline. The practical exercises are held five times a week. A general inspection is held every Saturday morning. The theoretical work consists of study of war games and recitations in the text books furnished by the War Department. This instruction is augmented by lectures on other military subjects by the commandant. The institution is placed in Class B A by the War Department inspectors, which indicates that the character of military work is of a high order.

WASHINGTON.

STATE COLLEGE OF WASHINGTON.

(Pullman, Washington).

The State College of Washington, (The Agricultural College, Experiment Station, and School of Science) was founded by an act of the State legislature approved March 28, 1890. By an act of the State legislature of 1905 the legal name of the College, which had been "The Agricultural College, Experiment Station, and School of Science of the State of Washington," was changed to "The State College of Washington." The purposes, functions and curriculum remained the same.

By both the State and the national laws affecting this institution military training for all male students is required, exceptions being made in the case of students over thirty-two years of age, those who are married or physically disabled. Students who are taking short courses in assaying and dairying and those who have served sufficient time in the United States Army and National Guard, or institutions of learning where satisfactory military instruction is given, are also excused. One hundred and five hours per year of military instruction is required. The instruction in military science is divided into practical exercises and theoretical work, the former including infantry drill, the service of security and information, ceremonies, guard mounting, target practice, signal drill and hospital corps drill. The theoretical instruction embraces recitations in the military text books furnished by the Government and includes lectures on the military policy of the United States, the relation between the civil and military authorities, military hygiene, etc. The students participating in military instruction are organized into a regiment of infantry of two battalions of three companies each, with a hospital detachment and signal detachment.

WEST VIRGINIA.

WEST VIRGINIA UNIVERSITY.

(Morgantown, West Virginia).

The West Virginia University originated from the national land grant act of July 2, 1862, and from the subsequent action of the State Legislature in carrying out the provisions of the act. On January 30, 1867, the State Legislature accepted the property of the Monongalia Academy at Morgantown which had been tendered to it by the board of trustees. This property also included the Woodburn Female Seminary. On February 7, 1867, the legislature passed an act permanently establishing "The Agricultural College of West Virginia." By an act of December 4, 1868, the name of the College was changed to "West Virginia University," and the governing board was designated the "board of regents."

The institution maintains a military department in compliance with the requirements of the land grant act, the regular course in which is prescribed for all regular students in the University below the rank of junior unless such students are more than 23 years of age upon their entrance to the University. The State has a system of appointments to the University as State cadets and students who receive these appointments are exempt from the payment of tuition or

matriculation fees and are at no expense for the use of text books. Enrollment in the division of military science and tactics or appointment as a State cadet does not render the student liable for military service to the State or to the United States Government. The course of instruction conforms to that prescribed by the Government (See Chapter III) and cadet organizations conform as nearly as possible to that of a similar body of troops in the United States Army.

WISCONSIN.

UNIVERSITY OF WISCONSIN.

(Madison, Wisconsin).

The University of Wisconsin is located at Madison. It was organized in 1848. The military department was instituted in the year 1866.

Students of the University of Wisconsin actually participating in military instruction now number nearly 1,400. These are organized as two provisional regiments of infantry of two battalions each, each regiment with a band. There is also an engineer company and a hospital company.

The War Department minimum requirement of 84 hours per year is the maximum of time granted for instruction. Of this 25 hours is given to classroom work. For the freshman the instruction covers Infantry Drill Regulations including schools of the soldier, squad and company. They also receive instruction in construction of entrenchments, in Field Service Regulations, including the service of security and information and camps. They also participate in battalion inspections and parades.

The sophomore classes are given instruction in guard duty, Small Arms Firing Regulations, company administration, first aid, Infantry Drill Regulations including combat exercises and work in leadership, map reading, bayonet exercises, and gallery and range firing.

Both classes have two hours a week of practical exercises, the freshman companies emphasizing drills in close order; the sophomores extended order, guard duty and rifle work with bayonet exercises and firing. By this method the work is made progressive in its character.

Lantern slide lectures on our colonial possessions and soldier life, and lectures on other military matters utilize such hours as are not available for practical purposes. Classes are held covering military law, field engineering, Field Service Regulations, topography and sketching, Infantry Drill Regulations, Small Arms Firing Regulations, guard duty and military hygiene. For this instruction regular gradua-

tion credits are given in addition to credits for drills. The text books used are those in use in the Army Service Schools.

WYOMING.

UNIVERSITY OF WYOMING.

(Laramie, Wyoming).

The Ninth Territorial Legislature of Wyoming passed an act approved March 4, 1886, authorizing formal action toward the organization of a State university. This law specifically authorized the establishment of an institution under the name and style, "The University of Wyoming" which was to be located in or near the City of Laramie; by the summer of 1887, a portion of the building known as the Liberal Arts Building was completed and the opening of the University took place that fall. The first session of the legislature after Wyoming became a state, passed an act approved January 10, 1891, levying an assessment of one-eighth of a mill for the support of this institution. This assessment has been frequently changed and now stands at three-eighths of a mill. The first State legislature assented to the terms and conditions of the Morrill Act and subsequent acts of the Federal Congress rendering aid to state institutions and also obligating this institution to give instruction in military science and tactics.

The course of instruction in military science and tactics is that prescribed by the War Department (See Chapter III) and embraces practical and theoretical work. The latter is supplemented by a series of lectures and informal talks covering the essential principles and details of the duties of a company officer of infantry. Lectures on the military history and military policy of the United States are also given each year. In addition to the usual practical military instruction target practice is held annually under conditions closely approximating those obtaining in the Organized Militia. The military organization is known as "The Cadet Corps." The students are organized into a battalion of two infantry companies conforming to the organization of a like unit in the Army. The commissioned officers and sergeants are generally selected from cadets in the third year of military instruction and corporals from those in the second year.

CHAPTER V.

CIVIL INSTITUTIONS OF LEARNING OTHER THAN LAND GRANT.

"The military school trains for character and for the State. It systematically develops the body, and it educates the mind along a consistent line for the double purpose of clear thinking and effective practical work. It exercises the character in discipline of action; habits of subordination to lawful authority; strict personal accountability for word and act; truth-telling; integrity and fidelity to trust; simplicity of life; courage."—*Charles W. Larned.*

There are many military schools, academies and colleges throughout the country, and they may be divided roughly into two classes.

1. Those in which the United States Government, through the War Department, assumes the control and direction of the military instruction, and to each of which it sends an officer of the Army to act as professor of military science and tactics; who in many cases performs the duty of commandant; and issues arms, equipment, ammunition, text books and other supplies.

2. Those institutions under private control, without the benefit of Government supervision, and with military arms and equipment secured by purchase, loan or rental from private dealers. In many cases this equipment is second-hand and obsolete.

The size, efficiency and equipment of both classes of these private institutions form a widely varying standard. Many of the institutions under Government supervision, have attained a very high degree of efficiency and approach in many respects the work performed by the National Academy at West Point.

This chapter is to deal only with the institutions of the first class. The rules and regulations for government of these institutions are set forth in full in Chapter III, and it would be useless repetition to reproduce them here. The fact is there is no difference in the requirements of the Government for the conduct of the military department of a private institution or land grant college. The Government makes a marked distinction, however, in the classification of the schools. The manner of classifying and also the names of the institutions classified are given in Appendix V. However, the new system of classification which will go into effect upon completion of the annual inspections for 1914, is fully described in Chapter III.

An attempt is made in the following pages to give a brief description in an impartial manner of the non-land grant institutions of

learning whose military departments are under the general supervision of the Government at the time this volume is prepared. It should not be considered, in reading these descriptions, that the work performed or the importance of the institution may be judged by the amount of printed matter devoted to it. This has been controlled rather by available data than by an effort to give to the institution which the author considers as possessing the highest standard, the greatest number of words.

The advantages derived from a military life by young men and boys are so many and so evident that parents should grasp them eagerly for their sons. If the situation were such as to compare the work of a good military school with that of a civil school of high grade, or to watch the results obtained under these widely different systems, it is believed our military schools would be crowded. Americans come in contact with military men or with military life, particularly in close touch with them, but very little, and the consequence is that the great majority of our people are not in a position to appreciate the value to the individual of a military training in youth, and are apt, if they give the matter any thought whatever, to consider this training as entirely physical, designed simply to make a man sit and walk erect, and more or less precise in his habits. The most remarkable economic development of the German Empire in recent years has been ascribed by many shrewd observers to the fact that every able bodied citizen of the Empire is a disciplined man, trained in an educational system, which, from the kindergarten to the university, is founded on a military basis, and which ends with a term of service "with the colors" in an army the most famous in the world for its efficiency and discipline. Dr. Lyman Abbott, in a recent address to the cadets of the New York Military Academy, while outlining the value of military education to the man in civil life, said: "Though I am a member of nearly every peace society in America, I am rapidly reaching the conclusion that a system of compulsory military service for a limited term would be of incalculable benefit to the young men of America and to the country as a whole." President Hadley, of Yale, in the course of an address delivered to the University expressed the same views in even more emphatic language.

The lack of discipline, training, system, punctilio, and common, everyday etiquette in our young men is one of the most deplorable of existing conditions, to which is no doubt due the existence of a general disregard and disrespect for constituted authority.

DISTINGUISHED AND ESPECIALLY COMMENDED INSTITUTIONS.

A bulletin of the War Department dated Washington, June 12, 1913, publishes the information that the following named non-land grant civil institutions of learning are among the "ten whose students have exhibited the greatest application and proficiency in military training and knowledge." Institutions so designated are known as "distinguished schools," and it is the ambition of every military school, academy or college in the United States, so to conduct its military department that it may receive this designation by the War Department. It requires a most thorough system of discipline, drill and instruction under most competent and faithful officers to reach the degree of efficiency necessary to achieve this coveted goal. There are a number of institutions which have in every way accomplished all that is necessary in the way of efficiency and faithful instruction to warrant this much-sought-for classification, but which have been handicapped by lack of sufficient numbers of students in attendance:

Culver Military Academy, Culver, Ind.
New Mexico Military Institute, Roswell, New Mex.
Norwich University, Northfield, Vt.
Pennsylvania Military College, Chester, Pa.
St. John's Military Academy, Delafield, Wis.
St. John's School, Manlius, N. Y.
Shattuck School, Faribault, Minn.
The Citadel, Charleston, S. C.
Virginia Military Institute, Lexington, Va.

The following non-land grant institutions are announced in the bulletin above mentioned as having been especially commended for the work of their military departments during the school year of 1912-13:

St. John's College, Annapolis, Md.
College of St. Thomas, St. Paul, Minn.
Georgia Military Academy, College Park, Ga.
Kemper Military School, Boonville, Mo.
Kentucky Military Institute, Lyndon, Ky.
Tennessee Military Institute, Sweetwater, Tenn.
Wentworth Military Academy, Lexington, Mo.
Western Military Academy, Alton, Ill.

The institutions herein described occur in the alphabetical order of the States in which they are located:

ARKANSAS.

OUACHITA COLLEGE.

(Arkadelphia, Arkansas).

Ouachita College was organized in 1886 and is a denominational institution under the Baptists.

It adopted its military department in 1896, and comes under the new classification of "C" (Chapter III). For purposes of instruction the students, who number 115, are organized as a battalion of infantry with staff and band. The character of military instruction is both theoretical and practical and is confined entirely to the infantry arm of the service. Three hours practical and three hours theoretical are devoted weekly to military science and tactics. Under a State law of Arkansas, cadets graduating as commissioned officers are commissioned at once as officers in the National Guard of the State.

CALIFORNIA.

THE HARVARD SCHOOL.

(Los Angeles, California).

The Harvard School was founded by Mr. Grenville C. Emery and Mrs. Ella R. Emery in 1900. The School is intended to fit boys for college, for technical schools, for Government schools and for a business career. The School was first inspected with a view to ascertaining if it could meet the requirements of the War Department for the detail of an officer of the Army, on April 22, 1909. The inspection was satisfactory and an officer has since been detailed for duty as professor of military science and tactics.

All cadets are required to take part in military exercises except those who are excused on account of physical disability. The drill periods occur four days each week. In addition to drill periods there are formations such as for reveille, setting-up drills, etc. There is an annual encampment for a period of ten days. During this time cadets are instructed in field work, camp sanitation and in the manner of living in the open. A large part of the military instruction is of a practical nature and embraces those things set forth in the Service Manuals.

GEORGIA.

GEORGIA MILITARY ACADEMY.

(College Park, Georgia).

The Georgia Military Academy, located at College Park, Georgia, was founded in 1900 by Colonel J. C. Woodward, aided by the citi-

zens of College Park. It opened with a limit of 40 pupils. The school has had a most healthy growth and is now one of the leading institutions of its kind in the South.

As a result of the annual inspection by an officer of the General Staff of the United States Army, in 1913, it was especially commended for the work of its military department.

The officer of the Army detailed by direction of the President for duty with the academy as professor of military science and tactics, also acts as commandant.

The Corps of Cadets is organized into a battalion, consisting of a commissioned staff, noncommissioned staff, band, and three companies (A, B, and C) under the commandant, assisted by several officers of the academy and a cadet major.

Instruction is given in the three arms of the service, viz.: infantry, cavalry, and artillery. Infantry instruction embraces exercises in setting-up, manual of arms, bayonet exercises, Butt's manual, company extended order drill, guard mounting and sentinel duty. Cavalry drill is dismounted and consists of saber exercises, and the dismounted evolutions of a troop. The artillery instruction is sufficient to give a fair knowledge of the modern breech-loading field piece and the evolutions of a battery without horses. All cadets are taught the mechanism and use of firearms and target practice with the military rifle and indoor gallery practice with the small bore Springfield rifle. The number of cadets in attendance in 1913 was 184.

GEORGIA MILITARY COLLEGE.

(Milledgeville, Georgia).

This institution was organized as a department of the University of Georgia under an act of the legislature of that State approved October 14, 1879, under the style of "The Middle Georgia Military and Agricultural College" and for more than ten years received recognition as such from the university authorities and shared in the annual appropriation and report of that institution.

In 1893 the trustees of the university withdrew the annuity which hitherto had been granted. To meet this sudden cutting off of some of its means of support the City of Milledgeville issued bonds for the purpose of erecting barrack buildings for cadets and shortly afterwards voted an additional tax for the support of the School.

As the original law creating the school as a department of the University still remains in force its legal status has undergone no change. The name, however, was changed under an amendment to

the above act approved December, 1900, whereby the institution received its present name of "Georgia Military College."

The school has the following departments: preparatory, collegiate, business, science, music, military, voice and expression. This sketch is concerned only with the military department.

The military department came into existence with the original organization of the school in 1879. It now consists of a battalion of infantry of three companies and a band, numbering 160 cadets. The course of instruction consists principally of infantry work altho there is a signal corps detachment. In addition to the other practical work the battalion enjoys practice marches and goes into camp for one week each year. The time devoted to military instruction is six hours per week not counting the regular Saturday morning inspections.

This institution is rapidly growing and has increased from 80 students in the military department in 1912 to 160 in 1914.

The school has been classed as "Class A" (See Appendix V) by the War Department inspectors. Its classification under the new order (See Chapter III) will be Class "M."

GEORGIA.

GORDON INSTITUTE.

(Barnesville, Georgia).

Gordon Institute, located at Barnesville, Georgia, was first chartered in 1852 under the name of "The Barnesville Male and Female High School." During the Civil War it was known as the "Barnesville Masonic Female Seminary." In 1872 the school was reorganized under the name of the Gordon Institute, in honor of General John B. Gordon.

The military department was added in 1890. In 1892 the War Department detailed for the first time an officer of the Army as professor of military science and tactics.

All male students of the Institute are required to take the military course. The students in this department are organized as a battalion of infantry of four companies, with a full complement of field, staff and noncommissioned officers. All officers and noncommissioned officers with the exception of the commandant are selected from the cadets comprising the battalion. The instruction in military science is both practical and theoretical, and is confined to those subjects prescribed by the War Department.

Cadets are required to be in uniform at all times. There is a daily routine of duties, conforming in many respects to that of a military post.

MARIST COLLEGE.

(Atlanta, Georgia).

The Marist College, conducted by the Marist Fathers, was legally incorporated in 1902, under the laws of the State of Georgia with the power to grant diplomas and confer degrees. The College, taking the Catholic religion as the very foundation of its work, teaches the dogmas, the moral principles and the history of the Catholic Church to its Catholic pupils. No student, however, is denied entrance privileges or honors on account of the religious opinions he may entertain.

The College gives each professor disciplinary authority everywhere in the precincts. Disobedience and disrespect to him are considered as though shown to the president personally.

The institution has three principal departments, namely, the College Department (Marist College, proper); the High School Department, and the Preparatory Department.

The military department of Marist College is organized as a battalion of infantry with two companies, a battalion staff and band. The character of instruction is confined almost exclusively to the infantry arm of the service. The students are required to be in uniform when in attendance at the College. Five periods a week of 45 minutes each are devoted to a combination of military and physical training.

RIVERSIDE MILITARY ACADEMY.

(Gainesville, Georgia).

The Riverside Military Academy was organized in 1908 as a military school. Serious military instruction, however, was not undertaken until the year 1913-14, at which time, through the showing made to the War Department, it secured the detail of an active officer of the Regular Army, (First Lieutenant Harry Hawley of the 9th Infantry) who is now on duty with the institution and is doing very effective work. The School will not receive any classification until the next annual inspection by the War Department.

The number of students in attendance is 154, organized into three companies of infantry, with staff and band. The instruction at present is confined to that of infantry, to which each cadet devotes no fewer than 75 minutes daily.

WESTERN MILITARY ACADEMY, ALTON, ILLINOIS.

Riverside Military Academy also has a summer Naval School on Lake Warner about a half mile distant from its military school. The Naval School is patterned something after that of the Culver School on Lake Maxinkuckee, Ind. The attendance in the summer session for the past three years has averaged 84.

The school's equipment, buildings and grounds are among the best in the South. It is situated in the midst of a park of 1,500 acres with only one neighbor within the distance of a mile. There is wireless telegraph, telephone, and street car service.

HAWAII TERRITORY.

THE KAMEHAMEHA SCHOOLS.

(Honolulu, H. T.).

The Kamehameha Schools at Honolulu has a military department in charge of an officer of the United States Army, detailed for such duty by the Secretary of War. Data for a further description were not available.

ILLINOIS.

WESTERN MILITARY ACADEMY.

(Alton, Illinois)

The Western Military Academy was founded in 1879 and incorporated in 1892 as a military academy and has been under practically continuous management from its beginning. The equipment now consists of ten modern buildings designed and erected for school purposes, which are located in a park of 50 acres. Its faculty of 16 instructors and its school work is approved by examiners and accepted by colleges and universities.

Its military department which was established in 1892 has State recognition in addition to its recognition by the United States Government. Its classification by the War Department inspectors has been "A."

The number of students in the military department is 200. They are organized as a batallion of infantry of four companies with a student band. The military instruction is largely infantry with some signal corps work. Five hours theoretical and two hours practical work in military instruction is given each week.

INDIANA.

CONCORDIA COLLEGE.

(Fort Wayne, Indiana).

Concordia College was founded in Perry County, Missouri, in the year 1839, by Lutherans from Saxony. The original home consisted of a modest log cabin in the backwoods. After several years the School was moved to St. Louis, Missouri, where it was taken in charge by a large Lutheran congregation. At the outbreak of the Civil War in 1861, it was removed to Fort Wayne, Indiana, its present home. Since its organization the institution has had 4,000 young men enrolled, more than one thousand of whom have entered the ministery. The dormitory of the institution furnishes ample quarters for 300 students.

The student body is organized as a battalion of infantry of four companies. The organization is required to attend drills four times a week. The students form practically a self-governing body under the command of the cadet officers of the battalion. These superintend the maintenance of cleanliness, food, order, and decorum in the dormitory.

CULVER MILITARY ACADEMY.

(Culver, Indiana).

The Culver Military Academy was founded in 1894 by Mr. Henry Harrison Culver of St. Louis, Missouri. The School has been military in character since its conception.

For the past eight years this institution has been designated as one of the ten "distinguished institutions" of the United States.

Its organization is a battalion of five companies with staff and band. The Battalion is under the immediate command of the commandant of cadets. The companies are under the immediate command of cadets officers supervised by officers of the tactical staff.

The number of students in the military department, regular session, 1913-14, was 462 and in the summer session, 1912-13, 420 (not including cadets returning for the winter session).

The Academy maintains a cavalry department with eighty mounts. This organization is known as "The Black Horse Troop," and it is well known throughout the country for its striking appearance and excellent horsemanship of the cadets composing it. It appeared at the last inauguration (1913) as the escort to the vice-president and has taken part in many similar events. A field battery of mounted artillery is also organized from among the cadets. Instruction is also given

THE "BLACK HORSE TROOP," CULVER MILITARY ACADEMY, SERVING AS ESCORT TO THE VICE-PRESIDENT OF THE U. S., MARCH 4, 1913.

BATTALION OF CADETS, CULVER MILITARY ACADEMY, CULVER INDIANA.

in spar and pontoon bridge building, signal drill, wireless telegraphy, (a portable wireless outfit being part of the School's equipment), and target practice. For instruction in the latter the institution has and maintains a range which, with the exception of that at Fort Benjamin Harrison, near Indianapolis, is the best in the State of Indiana.

During the fall and spring term seven and one-half hours per week are devoted to military instruction for the whole battalion. During the winter months military drill for the whole battalion is suspended and theoretical instruction two hours per week is given members of the first class.

The equipment of the school approximates in completeness that of the National Academies, and the institution through the generosity of the Culver family has enjoyed abundant resources and each building is a model of its kind. Its mess hall is probably one of the most beautiful in existence.

The cadet on entrance is not only examined physically but is also given a thorough examination in the psychological laboratory of the Academy to determine his academic classification. This is probably the only school in the United States at present which has adopted this plan, which is indicative of the scientific and up-to-date methods of the school work throughout.

The Academy is a secondary school, its graduates are being admitted to all colleges that admit students from secondary schools without special examination.

UNIVERSITY OF NOTRE DAME.

(Notre Dame, Indiana).

The University of Notre Dame was founded in the year 1842, by the Very Reverend Edward Sorin. The University was given power to grant degrees by an act of the State legislature January 15, 1844.

The military department of the institution came under the supervision of the War Department in 1910, when an officer was detailed by the Secretary of War as professor of Military Science and Tactics. Military instruction is now compulsory for all students except seniors and juniors. It is accredited as a class, and absences are regarded the same as from other classes, and involve the usual demerits and penalties. Military instruction is required for three hours a week and consists largely of practical exercises. The students are organized into two battalions of infantry, with full complement of

field, staff and line officers, the organization conforming as nearly as possible to a like organization in the Regular Army.

KENTUCKY.

KENTUCKY MILITARY INSTITUTE.

(Summer Session in Lyndon, Kentucky, and Winter home in Eau Gallie, Florida).

The Kentucky Military Institute was founded in 1845 by Colonel R. T. P. Allen, a graduate of West Point. The school was chartered by the State Legislature by an act approved January 20, 1847. The original idea was for it to be a State institution, but on account of financial stringency at the time, the charter was given to Colonel Allen with the understanding that he was to finance the enterprise, which he did most successfully. The Governor of the State of Kentucky is inspector ex-officio of the Institute and the Adjutant General is likewise a member of the board of visitors. The remaining members of the board of visitors are appointed by the Governor.

The School has always been essentially military as it was naturally modeled after West Point. It was one of the first schools to break away from the old fashioned curriculum, substituting modern languages for Greek and Latin, and making a strong point of teaching science and mathematics.

Under the new War Department classification the institution will come under class "M." There are slightly less than 150 cadets in the military department, who are organized into a battalion of infantry of two companies with a band. The instruction is confined to the infantry branch of the service with practical work in signaling. Practical military work covers six hours and the theoretical course three hours per week. The present Superintendent, Colonel C. W. Fowler, is himself a graduate of the Kentucky Military Institute. When he was appointed superintendent in 1896, he moved the school from the original location at Farmdale near Frankfort to Lyndon, Kentucky. In 1906, he organized the winter migration to Florida, which has become a permanent feature of the institution's work. The winter quarters are located at Military Park, 191 miles south of Jacksonville, on the Florida Seacoast Railway. The School remains in Florida from the first week in January until about the third week in April and then returns to Lyndon completing the year's work. By chartering a special train, this movement to and fro is made without the loss of a single recitation.

GUARD MOUNTING, KENTUCKY MILITARY INSTITUTE, LYNDON, KY.

MARYLAND.

ST. JOHN'S COLLEGE.

(Annapolis, Maryland).

St. John's College, Annapolis, Maryland, was first founded as King William's School, in 1696, and in 1784 was chartered under its present name. Among the students of that early period are found the names of George Washington Parke Custis, and Fairfax and Lawrence Washington, nephews of George Washington, also of Francis Scott Key, author of "The Star Spangled Banner," who entered the College in 1789 and was graduated in 1796.

The military department was organized in 1868 and was continued with more or less regularity up to 1884, when, for the first time, an officer of the United States Army, Lieutenant C. W. Foster, was detailed as instructor, and commandant of the Battalion. From that date to the present the Department has steadily grown in efficiency. It is entered in Class A and has three times been designated as a distinguished institution, first under Major W. E. Thompson, U. S. Army, in 1905, and later under Lieutenants E. B. Iglehart and R. E. Fisher, of the U. S. Army.

At present there are 180 students in the department, which is made up of a battalion of infantry, signal corps, hospital corps and band. One hour per week is devoted to theoretical and five hours per week to practical instruction, making a total of six hours per week.

There are now 32 graduates of the College in the service of the Government as officers of the Regular Army, and many others of the alumni are holding commissions in other branches of the military and naval service.

Not only does St. John's afford every opportunity to young men to obtain advanced education in the sciences and liberal arts, but it is also training a body of young men who can be relied upon for the defense of the Country in case of need.

MINNESOTA.

COLLEGE OF ST. THOMAS.

(St. Paul, Minnesota).

The College of St. Thomas was opened September 8, 1885. It is a diocesan institution, conducted by the diocesan priests, under control and direction of the Archbishop of St. Paul. The faculty is composed of priests and laymen selected for their experience and zeal in educational work. The purpose of the College is to prepare young

men for universities, seminaries, technical schools, and for military and commercial careers.

The military department of this institution has been of very high class. It was one of the ten distinguished schools in the years 1908 and 1909 and on two subsequent occasions has been given the distinction of an "honor school." The corps of cadets is organized into a regiment of three battalions, comprising nine companies, with a band. The course of instruction embraces Infantry Drill Regulations, Small Arms Firing Regulations, including gallery and range practice, Field Service Regulations, Manual of Guard Duty, and instruction in minor tactics. A regular military guard is maintained which is mounted each day with a cadet officer of the day, sergeant of the guard, etc. The College is supplied with full camping equipment for two companies, and all organizations are given practical instruction in the erection and maintenance of a military camp.

SHATTUCK SCHOOL.

(Faribault, Minnesota).

The Shattuck School grew from the little day school opened by the Reverend James Loyd Breck, D. D., in 1858, for boys and girls of Faribault. The Right Reverend Henry Benjamin Whipple, D. D., the first bishop of Minnesota, placed himself at the head of this work in 1860, and incorporated the "Bishop Seabury Mission." The Seabury Divinity School was the first of these schools to be provided with a building. In 1865, a few boys were taken in connection with this department as a Grammar School. This led after two years to the separate organization of a preparatory school while still occupying a portion of the Divinity School building. This was the beginning of the Shattuck School. It was carried on under the same corporation until 1905, when it was separated from Seabury and placed under its own board of trustees.

All students are required to participate in the exercises and instruction in the military department and none are admitted who are for physical reasons unable to do so. The students numbering slightly less than 200 are organized into a battalion of infantry of four companies, conforming to the organization of a like body of men in the United States Army. A platoon of field artillery is detailed from the companies. There is also a cadet band which is detailed from the companies. The instruction consists primarily of infantry work which embraces both a practical and theoretical course. An average of five hours a week is devoted to practical work and two and a half

THE BATTALION OF CADETS OF THE COLLEGE OF ST. THOMAS, ST. PAUL, MINN.

hours to theoretical instruction. During the Spring months the average practical instruction is increased to eight or nine hours per week. Cadet officers are appointed upon the recommendation of the commandant. The test applied is efficiency in the military work and ability to command; character; scholarship, and standing in school. A considerable number of cadets have secured positions in the Army and Navy either through the Government schools or by examination and appointment. It is reported from the office of the Secretary of War that during the Spanish-American War more men were in the various branches of the service who had been trained at Shattuck than at any other military school. The institution has thus made valuable return to the Government for its assistance in supplying equipment, text books and the professor of military science and tactics. Under the new classification the Shattuck School will came under class "M." It has in the past been classed as a "distinguished institution," so reported by the War Department inspectors for the years 1904, 1906, 1907, 1908, 1909, 1912, 1913.

MISSOURI.

KEMPER MILITARY SCHOOL

(Boonville, Missouri).

The Kemper Military School was opened June 3, 1844, by Professor Frederick T. Kemper, of Virginia, who continued in active control until his death in March, 1881. The present Superintendent who became a teacher in the institution in 1868, succeeded Professor Kemper in 1881.

The School is organized as a military post. The cadets are formed into a battalion of infantry of three companies with a full complement of commissioned and noncommissioned officers appointed from the cadet body, and a band. One hour each day is given to drills and there is a further routine of formations, guard mounts, inspections, ceremonies, etc., similar to that in a military post. The cadets receive careful training in the school of the soldier, squad, company, battalion and have instruction in artillery and signaling. One week during the Spring is given to camp life and camp instruction. Weekly recitations in tactics and military science are required of all. Additional military work is required of seniors and commissioned officers. The theoretical work requires two and one-half hours weekly. The result aimed at is to fit graduates to perform the duties of second lieutenants of the State Militia, or of United States Volunteers, should occasion arise, and to give an intelligent knowledge of the military system of

their country and their responsibility as citizens in this relation. By provisions of section 59 of the Military Law of Missouri, approved May 21, 1909, this School was given official recognition in the military system of the State, its annual inspection is provided for, and the Governor is authorized to commission its graduates.

WENTWORTH MILITARY ACADEMY.

(Lexington, Missouri).

This School was founded in 1880 by Stephen G. Wentworth, and is one of the pioneer military schools of the West. The military feature of the Academy was adopted in 1881.

In addition to having full recognition by the War Department, the School is a post of the National Guard of Missouri and its graduates from the State receive commissions as second lieutenants in the State military forces.

The military organization consists of a battalion of two companies and a band. It will be classified under the new classification as given in Chapter III as "Class M." The work in its military department for the year 1912-13 received special commendation by the War Department after the annual inspection in April, 1913.

The number of students in the military department ranges from 175 to 225. The military instruction embraces infantry, artillery, signal corps, hospital corps and engineering corps exercises. Eight and a half hours for practical drill and four and a half hours for theoretical work are given each week.

The institution has a splendid rifle team which won the championship of the United States in the National Military School Shooting League in 1912. In 1913 it won the Western championship in the same league.

Wentworth belongs to the North Central Association of Schools and Colleges, thereby having its scholastic work accepted by all higher institutions which receive students on certificate.

A system of athletics is maintained that has the unique feature of reaching every student. In the year 1911-1912 the Wentworth football team defeated the champion football teams of the Missouri State College League.

NEW MEXICO.

NEW MEXICO MILITARY INSTITUTE.

(Roswell, New Mexico).

The New Mexico Military Institute was established by an act of the legislative assembly of the Territory of New Mexico, passed in

THE KEMPER MILITARY SCHOOL, BOONVILLE, MISSOURI.

SKIRMISH DRILL, WENTWORTH MILITARY ACADEMY, LEXINGTON, MO.

1883, providing for a military school at Roswell, Chaves County. The buildings were completed March, 1898, and the school opened to students in that year.

The military feature was prominent from the beginning of the school. However, day students were permitted to attend during the first session. Since the close of the first year the school has been maintained as a strictly military boarding school for young men. All students are required to live in barracks and be under military discipline at all times. No student is admitted to the school who is not able to do the regular military duties.

This school was first recognized by the War Department in 1905, when an officer of the Regular Army was sent to Roswell for the purpose of inspecting its military department. The following spring the school was again inspected, as a result of which an Army officer was detailed as professor of military science and tactics.

The New Mexico Military Institute was designated as a "Distinguished Institution" by General Orders, War Department, published June 23, 1909. It was also so classed in 1910-11-12-13.

The battalion is organized into three companies and a band; the companies are captained and officered by cadets; the battalion is under the command of the commandant of cadets; instruction is given in infantry, field artillery (dismounted), signaling, etc. Much attention is given to target practice, to field problems, and to working out attack and defense. Great attention is given to extended order drills, to wireless signaling, to personal and military hygiene, and to sanitation.

The entire school life of a hundred and sixty cadets belongs to the military department. All officers of the Institute are military men and habitually wear the regulation uniform.

The military work continues from six-twenty in the morning, when reveille sounds, to nine-thirty at night. Cadets are marched to meals in battalion formation; they are marched to classes and to assembly. There is one hour of regular drill each afternoon, and Saturday there is battalion inspection and guard mount. Each Sunday afternoon a battalion parade is given at the institute and is followed by a band concert.

The New Mexico Military Institute is the only school of its class in the entire Southwest. It is located on a beautiful plain overlooking the Pecos Valley. The buildings are large and massive. The cadet barracks, which is some five hundred feet in length, three stories high and built of pressed brick, is designed according to the Tudor-Gothic with towers and battlements. The other buildings conform to this

style of architecture. The remarkable success of this school is attributed to its location and to its strict military discipline. It is 3,700 feet above sea level, in a climate where there is little rain or snow during the session. Out-door work, such as athletics and drills, are enjoyed throughout the entire year. December, January and February, as a usual rule, furnish beautiful and delightful weather. It is rarely necessary to suspend the field exercises even for a day. For this reason the school does not maintain an indoor gymnasium, all work being done in the open air.

NEW YORK.

COLLEGE OF ST. FRANCIS XAVIER.

(New York).

The College of St. Francis Xavier, conducted by the fathers of the Society of Jesus and intended for day scholars only, was founded in October, 1847, and in January, 1861, was endowed by the Regents of the University of the State of New York with full collegiate powers and privileges.

The first Latin school in the State of New York was opened in 1683, by members of the English Province of the Society of Jesus. The pupils of the Jesuit School were called to their classes by the ringing of the bell of the old Dutch Church in the fort. In 1809, a School was established on a new site on Fifth Avenue and 50th Street, and was known as the New York Literary Institute. This School was in turn followed in 1847, by the School of the Holy Name of Jesus, near the corner of Walker and Elizabeth Streets. The building occupied by this School was destroyed by fire January 22, 1848, and its classes were conducted for a time on James Street. Later a house was rented at 77 Third Avenue for use while more spacious accommodations were in preparation on the present site at West 15th Street, which was occupied in September, 1850, and the present name of the College of St. Francis Xavier was adopted. A charter was granted the College of St. Francis Xavier December, 1862, and was amended on April 17, 1913, by the Regents of the University of the State of New York, extending the authorized location and jurisdiction of the College to include the present City of New York. By this amendment the College was authorized to extend its educational operations beyond the limits of Manhattan Borough. The new College was opened in Brooklyn in 1908. The Regents of the University of New York granted permission for the College to extend its location and jurisdiction to Brooklyn where the classes in the College are conducted. The Xavier High

NEW MEXICO MILITARY INSTITUTE, ROSWELL, NEW MEXICO.

CAVALRY PARADE, ST. JOHN'S SCHOOL, MANLIUS, N. Y.

School and the Xavier Grammar School continue classes at 39 West 15th Street and 53 West 15th Street, respectively. The High School offers a four-years' course in English, Latin, Greek, Mathematics, History, French, German, Spanish, Science and Military Science and Tactics. Students are admitted from the High School to the College at the end of the fourth year after a successful examination.

The cadet corps of the High School is organized as a battalion of infantry of six companies with a full complement of commissioned and noncommissioned officers selected from the student body. All the students are obliged to take part in the drill and to wear the regulation uniform. None are excused except for physical disability. The course of instruction is confined to the infantry arm of the service and conforms to the requirements of the War Department.

THE MANLIUS SCHOOLS.

(Manlius, New York).

St. John's was founded in 1869, and for twenty-five years has been under the management of its present head, General William Verbeck, formerly the Adjutant General of the State of New York, who through the assistance of trained specialists and veteran teachers has brought the school to a high degree of success and excellence. In this institution it has been from the first the law and method of government to appeal, through a military system, to what is best and loftiest in the pupil—to his honor, his veracity, his candor, his self-respect, his loyalty, rather than to fear or comfort, or popularity, or promotion or any mortal reward.

St. John's says: "There are no educational institutions in the world that teach a higher sense of duty and honor than West Point and Annapolis, and no men that have a higher average of integrity and capacity for responsibility than the men who are officers in the Army and Navy. It is then natural we should study the means and methods that create such character, because it is the best vehicle for the expression and education of military virtues. We turn to the best traditions of the Army as a model."

Through its scientific and classical courses it prepares for the scientific or arts courses of colleges, and enables the cadet to pursue his studies to advantage. Through its main engineering course, which is designed to cover the first two years of college work and which approximates the course of the United States Military Academy at West Point, it fits directly for appointment as second lieutenant, coast or field artillery, cavalry or infantry of the United States Army.

The institution has a coaching, or tutoring, department to meet the demands for special preparation for college, for the government schools and for the Army.

The military course includes practical and theoretical work in Infantry Drill Regulations, Manual of Guard Duty, map reading, duties of advance and rear guards, patrols, military law, military correspondence, organization and tactics, customs of the service and military history.

The School offers exceptional opportunities for instruction in the cavalry branch of the service. Horsemanship is considered a valuable part of the physical training and is encouraged because it is a graceful and useful accomplishment. The instruction in cavalry is elective. Cadets who elect this work are organized and equipped in a manner that conforms with the best traditions of the Army.

VERBECK HALL.

This department of the Manlius Schools is a home where young boys from eight to fourteen years of age receive separate care, attention and education. The first object of St. John's is to send out boys thoroughly prepared for college, and the mission of Verbeck is for boys to take high academic standing. This School is separated from the older boys and occupies Verbeck Hall, a handsome building especially suitable for its needs. The younger pupils are organized into a company of their own and simple military drill and routine is exacted of them.

NEW YORK MILITARY ACADEMY.

(Cornwall-on-Hudson, New York).

The New York Military Academy was established in 1889, to provide a place for boys and young men who can pursue their studies and live their school-lives while enjoying the benefits of a military system. This institution is established on a thorough military basis and is conducted as nearly like the United States Military Academy at West Point as is practicable at a private school. It is not the aim of the Academy to graduate soldiers but to graduate young men who, though destined for civil life, shall possess the best qualities of a soldier, who shall be obedient to proper authority, orderly, prompt, courteous, erect and well-developed physically. The academy realizes that the mere wearing of a uniform with an occasional drill will not produce such results but may be obtained only through a long period of strict discipline, just but firm, and a long period of training with gradually

increased responsibilities. The Academy is chartered by the Regents of the University of the State of New York, and its courses of study are approved and passed and educational work inspected by the Department of Education.

The military department of this school came into existence with its organization and it is now one of the institutions of Class "A" grade. The number of cadets in attendance is 172, who are organized as a battalion of infantry of three companies, with a band. There is also a troop of cavalry, whose members are taken from the infantry.

The head of the military department is a graduate of West Point who has had many years of experience in the Regular Army, including not only service in the field but also as executive officer of the Army Service Schools at Fort Leavenworth, and as a member of the General Staff at Washington. The Academy, as stated, is modeled after West Point and endeavors to train its cadets along the lines of the strictly cadet life of that famous school. The military work is confined to elementary instruction in Infantry Drill Regulations, plain horsemanship for the cavalry, the details of guard duty for both officers and privates—in brief a simple compliance with the requirements of the War Department under the supervision of which the military department is conducted. The Academy is a high grade institution in every respect.

NORTH CAROLINA.

THE BINGHAM SCHOOL.

(Asheville, North Carolina).

The Bingham School was founded in 1793, by Reverend William Bingham, the grandfather of its present headmaster and owner, and it has been migratory. Its first location was at Wilmington, its second at Pittsboro', its third at Hillsboro', its fourth at "Mount Repose," in the country, ten miles from Hillsboro', where its founder died in 1825. He was succeeded by his son, William J. Bingham, in whose hands the School was located first at Hillsboro' from 1825 to 1845 and then at Oaks in Orange County, where it was conducted until 1864. In the latter year it was moved to Mebane. All the buildings of the institution were destroyed in May, 1882, and this catastrophe was repeated in 1890, when the school was moved to its sixth location on the Asheville Plateau, where it is now located. The Bingham is the oldest school for boys in the Southern States.

After a successful non-corporate and merely civil existence of nearly 70 years the school was incorporated by act of Assembly, 1864, as a military academy.

The School officers are commissioned by the State, the superintendent as colonel and the teachers "with rank not higher than that of major." From 1882, when the detail of officers from the active list of the United States Army as military instructors in schools and colleges began, up to 1898, the military instruction had been committed to officers of the Army. The School lost its Army detail at the outbreak of the Spanish War, when these officers were called away from all institutions of learning. The military organization which was introduced in 1861 was found so conducive to discipline, health and scholarship, that it has been retained, the military department being coordinate with the other departments of the School. The military instruction conforms to the requirements of the War Department as set forth in Chapter III. For purposes of instruction the students are organized into a battalion of infantry of two companies with a bugle and drum corps.

OHIO.

OHIO NORTHERN UNIVERSITY.

(Ada, Ohio).

On August 14, 1871, the "Northwestern Ohio Normal School" was formally opened for the instruction and training of teachers in the science of education. In the fall of 1875, the Northwestern Normal School located at Fostoria was consolidated and incorporated with the Northwestern Ohio Normal School at Ada. In 1885 the name was changed from Northwestern Ohio Normal School to Ohio Normal University. From its inception the School was under private management and control, until, in September, 1898, the owners sold to the Central Ohio Conference of the Methodist Episcopal Church, the real estate and personal property belonging to the University. In 1904 and 1905 the institution was re-chartered under the name of the Ohio Northern University.

This institution has a military department and every ablebodied male student intending to complete any of the University courses or taking work which necessitates two years or more of attendance is required to participate in both the practical and theoretical work of the department. This requirement continues through three terms. The military work counts as a substitute for any elective in the curriculum. In order to secure credit on the records of the University the cadet is required to be regular in attendance, to be subject to all military discipline, to drill not less than 150 hours, and to win a credit of at least 85%. The cadets are drilled each year in the school of the soldier,

company and battalion and in the ceremonies and in the manual of the saber, besides the regular foot drills. There is a signal corps detachment which is instructed in visual signaling, both with the flag and torch. Practical work also includes target practice and other practical instruction. The students in the military department are organized into a battalion of infantry of four companies, with full staff and band. There is also a provisional battery of field artillery and a signal corps.

WILBERFORCE UNIVERSITY.

(Wilberforce, Ohio).

On September 21, 1844, a committee was appointed in the Ohio Conference of the African Methodist Episcopal Church to select a site for a seminary of learning. A tract of land twelve miles west of Columbus was purchased and "Union Seminary" was projected. This School was opened in 1847, thus being the first school for the education of colored people in this country, the germ of which later developed into Wilberforce University.

On September 28, 1853, the Cincinnati Conference of the Methodist Episcopal Church recommended "the establishment of a literary institution of high order for the education of colored people generally," and in May, 1856 "Tawawa Springs" in Green County, Ohio, was purchased and Wilberforce University located thereat. By concurrent action the Methodist Episcopal Church and African Methodist Episcopal Conference of Ohio cooperated for the success of the University. It was incorporated August 30, 1856, and the University began its work in October of that year.

On January 9, 1894, an officer of the Army was designated to organize a military department at Wilberforce and serve as professor of military science and tactics. This assignment fell to Lieutenant John H. Alexander. Upon his death he was succeeded by Lieutenant Charles Young of the 9th United States Cavalry, the only remaining colored officer in the United States Army who is a graduate of West Point. There have been several changes in officers since Lieutenant Young finished his tour of duty in 1905. Wilberforce is the only colored institution in the United States to receive a detail of an Army officer to superintend its military department.

The cadets are organized as a battalion of infantry and the instruction consists of practical exercises in infantry drill and recitations in drill regulations, supplemented by lectures on minor tactics and other military topics. The students are also given target practice and

instruction in signaling. The officers of the battalion are selected from the students who excel in class standing, who are the most exemplary in deportment and the correct performance of duty, and military in bearing. All male students unless especially excused take instruction in this department.

PENNSYLVANIA.

PENNSYLVANIA MILITARY COLLEGE.

(Chester, Pennsylvania).

In 1821, John Bullock opened a boarding school at Wilmington, Delaware, and conducted it successfully for 26 years. At his death in 1847, Samuel Alsop secured control of the school and ran it until 1853, when he transferred by sale the equipment and good will to Theodore Hyatt, then in charge of the parochial school of the First Presbyterian Church of that City. In the fall of 1858, military instruction was introduced and speedily took on so definite a form that, April 19, 1859, the Governor of the State authorized the issue to the institution of "certain public arms." This radical change in the constitution of the School opened a new era in its history and, to make the evolution complete, a characteristic name was adopted, "Delaware Military Academy." At the opening of the Civil War, increased facilities for the conduct of the academy became necessary, and accordingly, the extensive and valuable school property then vacant at West Chester, Pennsylvania, was leased.

The legislative act incorporating the institution now known as the Pennsylvania Military College, was approved April 8, 1862, and invested the board of trustees with all the powers and privileges of a military university. It authorizes the conferring of scholastic honors and degrees, enjoins the conduct of theoretical and practical instruction, and empowers the State authorities to supply arms for infantry, artillery and cavalry drills together with tents and other equipage. A supplement to the act of incorporation, approved February 21, 1868, authorized the Governor of the State to grant to the president, vice-president and adjutant of the college, the commissions respectively of colonel, lieutenant colonel and captain of infantry.

During the summer vacation of 1862, the school equipment was transferred to the new quarters at West Chester and the first session in Pennsylvania opened September 4th of that year. In December, 1865, another change of location was made when the institution was moved to Chester.

In the conduct of the military department, the president, as commandant of the corps of cadets, is assisted by thoroughly educated men. Military instruction is both theoretical and practical, to facilitate which the United States War Department and the State authorities furnish proper equipment for drill in each arm of the service, including breech loading steel guns, machine guns, mortars, United States Magazine rifles and sabers. For signaling and hospital corps work there are flags, heliographs, litters and all other needed appliances. Camp equipage is supplied by the State under the act of incorporation. The practical course consists of infantry and artillery drills, guard duty, inspections, target practice, signaling, castrametation, and other exercises incident to a complete military system. In the artillery drill is included the "manual of the piece," mechanical maneuvers, evolutions with batteries of machine guns, and firing. All cadets participate in them. The theoretical course includes recitations in Infantry Drill Regulations, Manual of Guard Duty, Elements of Military Science, Small Arms Firing Regulations, Field Service Regulations, Manual of Military Field Engineering, official correspondence and preparation of official papers, and keeping of rosters. The cavalry drill is optional and open to cadets in all classes. The entire system of military instruction follows in most respects that at the United States Military Academy at West Point. The military element enters largely into the general discipline of the College.

SOUTH CAROLINA.

BAILEY MILITARY INSTITUTE.

(Greenwood, S. C.).

The Bailey Military Institute, located at Greenwood, S. C., has an officer of the Army on duty as professor of military science and tactics. Sufficient data were not available for further description of this institution.

THE CITADEL.

(Charleston, South Carolina).

Previous to the year 1841, the State of South Carolina had two depositories for its arms and munitions of war, one known as the Citadel in the City of Charleston, the other known as the Arsenal in the City of Columbia. These were guarded by regularly organized companies and were maintained at considerable expense to the State. Governor Richardson of that State made the suggestion that these

guards should be replaced with young men, who, while serving as guards should receive military training and instruction in the practical and mechanic arts. Under the administration of his successor, Governor Hammond, an act of the legislature was passed on December 20, 1842, creating the Citadel and Arsenal Academies. The faculty of the Citadel was elected February 23, 1843, and the Academy was in operation on the 20th of March. The other Academy, the Arsenal, at first co-equal with the Citadel, was soon incorporated with it and had for its function the instruction and training of the recruits forming what is known as the "fourth class."

The first class of student-soldiers numbering six was graduated in 1846. Of the 240 graduates of the institution before the close of the civil war about 200 were officers in the Confederate service, out of which 43 were killed on the field of battle. A detachment of cadets under Major P. S. Stevens, Superintendent and graduate of the Citadel, manning a battery of twenty-four-pounders on Morris Island, January 9, 1861, drove off the steamer, "Star of the West," which was attempting to relieve Fort Sumter, thus firing the first hostile shot of the war. It is also stated that a detachment of cadets under the command of Captain J. P. Thomas, fired the last shot of the war delivered by any organized body of troops east of the Mississippi River, when on May 9, 1865, they were engaged in a skirmish with General Stoneman's command near Williamstown, South Carolina.

At the fall of Charleston in February, 1865, the Citadel was occupied by Federal troops. The corps of cadets was at that time in the field in the upper part of the State and never returned to the institution, which continued in the hands of the United States military authorities until 1881. An act to authorize the reopening of the Military Academy was passed by the General Assembly and approved January 31, 1882. The Citadel was reopened on October 1st of that year with 189 cadets and has been in continuous and successful operation since.

The number of cadets in attendance at the Citadel is now in excess of 200. The cadet corps is organized into a battalion of infantry of four companies. The character of instruction given is largely that of the infantry arm of the service with a limited amount of work in field artillery and signal corps. The amount of time devoted to practical instruction is four hours per week. There is daily guard mounting; all formations are military formations; review and inspections are held every Saturday; dress parades are held once a week after February 22, and an annual military encampment of two weeks during

which time there is considerable field work and target practice. The theoretical work is divided into three classes, namely: freshman, sophomore, junior and senior, and consists of recitations in the Service Manuals and lectures on military topics. The institution has been placed in the "distinguished class" by the War Department inspectors for the following years: 1904, 1905, 1908, 1909, 1910, 1911, 1912, 1913.

TENNESSEE.

COLUMBIA MILITARY ACADEMY.

(Columbia, Tennessee).

The Columbia Military Academy was opened in September, 1905, occupying the buildings and grounds which had formerly been known as the Columbia Arsenal. Through an act of Congress approved April 23, 1904, the Secretary of War was authorized to convey this property to the Columbia Military Academy, an educational corporation organized under the laws of Tennessee. The act conveying the property also prescribed that the corporation file its acceptance with the War Department stipulating that the same shall be dedicated and used for purely educational purposes and no other. It also provided that the Secretary of War shall be a visitor at the said institution and have and exercise full rights of visitation and also the right to prescribe the military curriculum and to enforce compliance therewith. The deed of conveyance stipulates that the United States reserve the right to use such lands for military purposes at any time on demand of the President of the United States.

The Academy has the unique distinction of being a State corporation, giving military instruction in a plant erected by the national government and with a military curriculum prescribed by the Secretary of War.

The enforcement of all discipline is under the commandant of cadets, who is responsible for the discipline of the institution. The details of discipline are in a measure in the hands of the cadet officers and are set out specifically in a book of regulations, a copy of which is supplied each student upon his entrance. The military is in force 24 hours of the day. The aim of the Academy is not to allow military routine to become irksome but to vary it as to keep the boy interested at all times. There are most excellent drill grounds ideally located for close and extended order drill, cavalry drill, sham battles and maneuvers. There are approximately 100 cadets in attendance who are organized into a battalion of infantry of two companies. The practical instruction consists of exercises in the infantry and cavalry arms

of the service and also includes instruction in the Manual of Guard Duty, Field Service Regulations, Small Arms Firing Regulations and Outlines of First Aid to the Injured. There is also instruction in signaling and field artillery. The theoretical instruction embraces recitations in all of the practical work and includes besides lectures on military subjects, embracing military tactics, service of security and information, castrametation, camp sanitation, etc.

SEWANEE MILITARY ACADEMY.

(Sewanee, Tennessee).

The Sewanee Military Academy, "The University of the South," was organized in 1857 by bishops of the ten Southern dioceses of the Episcopal Church, receiving the name of the "University of the South" at the time. The idea of the founders was to establish a university in the South for the promoting of social order, civil justice, Christian truth; to do for the South what the English universities have done for the youths of England. The adoption of the military feature was coincident with the founding of the School.

The number of students participating in the military work in 1913-14, was 116, organized into a battalion of infantry of two companies with a band. The character of military instruction partakes of that of the infantry arm of the service only, to which is given during the winter season five hours a week and during the open season an average of ten hours.

The Sewanee Military Academy is a preparatory school and its graduates are admitted on certificate to any of the American colleges. The academic standing of the institution has always been kept very high.

For a number of years the military feature at Sewanee was what is popularly known as the "lax military system" and the Academy was placed in class "C" by the War Department, but the present headmaster, Colonel Du Val G. Cravens, a man of high attainments and an ideal organizer, instituted in the year 1912-1913, a strict military system and for the past two years the Academy has been in class "A" (or "M" under the new classification). Major E. S. Benton, U. S. A., Professor of Military Science and Tactics and Commandant, has ably assisted Colonel Cravens in this work.

Considerable attention is paid to athletics and the students receive a thorough training. The institution won the Preparatory School Championship of the South in the years 1911 and 1913 in football.

The University is located on a spur of the Cumberland plateau between Chattanooga and Nashville, the domain covers some 10,000 acres of diversified mountain land and has many natural beauties including caves, waterfalls, clear cold springs and pools. The plateau is about 1,000 feet above the surrounding plain and is cool in summer and has many of the advantages of a summer resort.

TENNESSEE MILITARY INSTITUTE.

(Sweetwater, Tennessee).

This institution was founded in 1902, as a military school. By act of the State Legislature all members of the faculty and military staff are regularly commissioned by the Governor of State as officers in the Tennessee National Guard.

The government of the institution is a modified form of military discipline and it is one of a considerable number of similar institutions that have installed the "honor system."

At the present time there are 175 cadets in attendance, who are organized as a battalion of infantry with cavalry and artillery detachments. The military course of instruction conforms to that prescribed by the War Department, as given in detail in Chapter III. The Institute has in past years been placed in "Class A" by the War Department inspectors. The Tennessee Military Institute is one of the seven "Class A" schools especially commended by the Board of Inspectors sent out by the War Department in 1913. Nine hours each week are devoted to practical and theoretical instruction. Membership in the cavalry troop is optional.

TEXAS.

THE PEACOCK MILITARY COLLEGE.

(San Antonio, Texas).

The Peacock Military College was founded in September, 1894, and its military department was instituted in 1899. Under the War Department classification it has been classified as "A" (See Appendix V.).

The students are organized into a battalion of infantry of three companies. The number of students in attendance is one hundred. The character of instruction is largely that of infantry, to which six hours per week are devoted.

This school was the first in Texas or any Gulf State classed "A" by the War Department. It is private property, and undenomina-

tional, being the oldest school in the State of Texas dependent for maintenance entirely upon tuition fees. The President and owner of the institution is Wesley Peacock, Ph. B., University of Georgia.

THE WEST TEXAS MILITARY ACADEMY.

(San Antonio, Texas).

The West Texas Military Academy of San Antonio, Texas, was organized and founded in 1893. The military department was instituted the same year and since 1896 has had an officer of the United States Army detailed as professor of military science and tactics. It has been placed in Class A by the War Department inspectors since 1909.

The military organization is that of a battalion of infantry with bugle, fife and drum corps. The total enrollment of this department is 135. The military instruction is confined to the infantry arm of the service and includes the school of the battalion, target practice and an annual encampment with all duties pertaining to a permanent camp. Some instructing is also given in signaling. Three and three-fourths hours per week are devoted to practical military exercises and two hours to practical and theoretical work for officers and noncommissioned officers. The exceptionally mild climate allows drills to be held out of doors the entire school year. The students who live at the Academy are required to be continually in uniform and lead, as far as the surrounding conditions can reasonably be expected to permit, a military life.

VERMONT.

NORWICH UNIVERSITY.

(Northfield, Vt.).

Norwich University was organized at Norwich, Vermont, in 1819, as "The American Literary, Scientific and Military Academy," the first institution in the country to offer a course in civil engineering, and the first outside West Point to require military training. The act changing the academy to Norwich University was passed in 1834, and the charter provides that the board of trustees "shall be required to furnish at said institution constantly a course of military instruction, both theoretical and practical."

The War Department classifies the institution under general orders No. 70, 1913, as "Distinguished College, Class M C" (classification in past has been distinguished A).

NORWICH UNIVERSITY, NORTHFIELD, VERMONT.

The cadets, numbering about 185, are organized as a squadron of the First Cavalry, V. N. G., and thus have a direct relation to the State military department, each man being regularly enlisted.

The theoretical instruction consists of recitations and lectures each week for each class; and the practical side of the routine of post life, from reveille to taps, including five hours a week of drill and a ten-day encampment or practice march each year. To this is added an occasional "week end" march for individual troops.

Drills are both mounted and dismounted; and the proper officers have charge of the regular office work, making out reports, property returns, etc. Discipline is managed by the military department, summary and general courts martial being the forms adopted. The summary court officer is a cadet, whose power to inflict penalties is limited, and whose judgments are reviewed by the commandant. The general court is made up of officers from the faculty and its findings are subject to review by the president.

Guard is mounted every day and the officer of the day is held strictly responsible for the good order of the corps during his tour.

Music for the various ceremonies is provided by the band, which is a distinct organization, and holds its practice as a part of the military work.

VIRGINIA.

FORK UNION MILITARY ACADEMY.

(Fork Union, Virginia).

The Fork Union Military Academy was established in 1897. The location of the Academy is in the village of Fork Union, equidistant from the James and Revanna Rivers, in the foothills of the Blue Ridge Mountains.

This Academy is one of the three civil educational institutions of Virginia having an Army officer detailed by the War Department. Its military feature is now in its tenth year and has proved most satisfactory to the trustees. Cadets are in uniform at all times, the wearing of civilian dress being prohibited. For purposes of instruction the cadets are organized as a battalion of infantry with a staff. Military instruction is confined to the infantry arm of the service. The military feature of the institution is evident from "reveille" in the morning until "taps" at night, the cadets following a regular routine similar in many respects to the routine order in a military post.

The Academy is a preparatory school and does not confer degrees but grants the academic degree upon the completion of the course.

STAUNTON MILITARY ACADEMY.

(Staunton, Virginia).

The Staunton Military Academy was founded in 1867 by Captain William H. Kable, A. M., University of Virginia, as a preparatory school for all universities, and was conducted until 1912 by him, in which year he died and the work was then taken over by his son, Colonel William G. Kable, who is its present principal. This institution is among the largest, if not the largest military preparatory school in the United States, and its academic work has a very high standing.

Staunton Military Academy, while among the oldest of the military schools, has not until recently placed its military department under the supervision of an officer of the United States Army. This occurred in October, 1913, when Captain Lewis D. Greene, U. S. A., was detailed by the Secretary of War for duty at this institution as professor of military science and tactics. This requires the course of instruction in military science to conform to that prescribed by the War Department, as set forth in considerable detail in Chapter III.

There are 350 boarding cadets at the institution. For instruction in infantry tactics and in military police and discipline, the cadets are organized as a battalion of five companies, with staff and band, under the commandant of cadets. The officers and noncommissioned officers of this organization are selected from those cadets who have been most studious, soldier-like in the performance of their duties and most exemplary in their general habits.

The routine of military duty follows very closely that of a military post. The cadets are constantly in uniform and under military discipline.

VIRGINIA MILITARY INSTITUTE.

(Lexington, Virginia).

The Virginia Military Institute was created by legislative act of the State of Virginia in 1835-36, and finally in 1838-39, with the dual purpose of providing military education and a substitute for the company of State troops maintained as a guard for the arsenal in Lexington.

Its characteristic organization was imparted to it by Capt. Claude Crozet, State Engineer of Virginia, a graduate of the Polytechnic Institute of Paris, an officer of Napoleon's Army, and later Professor

of English at West Point. Francis H. Smith, a distinguished graduate of West Point, and a retired artillery officer was elected superintendent, in which capacity he served from 1839 to 1889.

The academic character of the institution has always been technical, and the military organization that of a battalion of infantry, at present of six companies, with an aggregate of about 380 cadets, ranging between 16 and 25 years of age. The band is employed by the State. Every student of the institute is a member of the cadet corps and the routine of West Point is in effect. The reservation is a State military post. The assistant professors comprise the tactical staff of the commandant and are selected from among graduates. All officers of the faculty and sub-faculty hold commissions in the Virginia volunteers. The superintendent and full professors are commissioned in the State Engineers. The Army officer detailed by the War Department acts as professor of military science but performs no tactical duties.

There are four classes, the academic curriculum being common to all cadets the first two years; civil and electrical engineering, chemistry and liberal arts courses being elected for the last two years.

Theoretical and practical instruction is given all cadets in field engineering, signaling, first aid, gunnery and gun drill in addition to their services in the infantry battalion.

All cadets receive a complete course of gallery and range practice each year. One week or more is spent in the field annually. Guard mount, drills and parade are held daily throughout the year from Sept. 1st to June 25th.

The small section system of West Point is employed for academic instruction and cadets are marched to sections and to meals in ranks. The daily military routine begins with reveille at 6:15 A. M., and ends at "taps" at 10:00 P. M. A regular guard is mounted each morning and remains on duty throughout the day and night. Academic work commences at 8:00 A. M. and continues until 1:00 P. M., and from 2:00 to 4:00 P. M., daily except Sundays.

The institute is conducted by the military orders of the superintendent and the corps is commanded by the commandant of cadets. The War Department classification has always been the highest, having been classed with the "distinguished schools" every year since 1904.

For the past 10 years an average of ten members of each graduating class have entered the United States Army, in which there are a

total of near 200. The Institute has in recent years furnished adjutants general for seven different states.

The Virginia Military Institute was the first normal school in Virginia and offered the first course of industrial chemistry and scientific agriculture in the South.

Sixty cadets are annually appointed from senatorial districts of the State and bear the same relation to Virginia as cadets at West Point to the United States. Their obligations may be discharged by teaching or service in the volunteers.

During the war between the states the school was known as the West Point of the Confederacy, to which it contributed near 1,100 commissioned officers including 30 general officers and over 500 field officers, although there had been but 500 graduates and 1,200 matriculates up to June, 1861. In 1861 the corps furnished drill instructors for 20,000 Confederate troops mobilized at Richmond during the Spring and Summer. It was in the field 12 times as a military unit under the orders of the Confederate War Department during the war, participating in the battles of McDowell, 1861, Covington, 1863, and Newmarket in 1864. It was actually under fire on four occasions and in the Battle of Newmarket lost nine killed and forty-eight wounded out of 250 cadets engaged. It has been estimated that at one time one-sixth of the Confederate forces were commanded by graduates. Every regiment in Pickett's famous division at Gettysburg but two was commanded by a graduate.

The great majority of the staff and field officers, two of the division and many of the brigade commanders of the Army of Stonewall Jackson, who was professor of natural and experimental philosophy and an instructor of artillery at the institute from 1852, until the time of his death, were drawn from the institute, and the artillery of the Army of Western Virginia was largely commanded by graduates. Over 200 of its élèves fell in battle.

Though the institute had been in existence but six years it furnished 14 officers in the Mexican War.

In the Spanish-American War the institute furnished a great number of officers of the volunteers. Of the living élèves it is estimated not less than 2,000 would volunteer in the event of a serious war.

In the professional, scientific, industrial and political world its graduates are conspicuously eminent and among the more illustrious members of its faculty have been numbered Matthew Fontaine Maury,

John Mercer Brooke, John T. L. Preston, Marshall McDonald and G. W. C. Lee, the last succeeding his father as President of Washington and Lee University.

The annual appropriation from the State of Virginia has been for some years $40,000. The institution is not endowed and receives no other public support.

The institution with its educational equipment and library was destroyed by U. S. Volunteers under General David Hunter in June. 1864.

WASHINGTON.

UNIVERSITY OF WASHINGTON.

(Seattle, Washington).

The foundation for this University was laid in 1854, when Governor Isaac Ingalls Stevens recommended in a message to the first legislature that Congress be memorialized to appropriate land for a university. Two townships were subsequently granted, and in January, 1861, the legislature finally located the Territorial University at Seattle. The first board of University Commissioners met on February 22, 1861, and on May 21st, of that year, the cornerstone of the main building was laid. The University was open for students November the 4th following.

A course of two years in military training is required. All able-bodied male students (except those from foreign countries, not intending to become naturalized) must take the course which by the regulations of the University is required during the first and second years. Three hours a week are devoted to military training, for which two credits are given each semester. The students participating in military instruction are organized and instructed as infantry, and the course of instruction is confined to that arm of the service.

WISCONSIN.

THE NORTHWESTERN MILITARY AND NAVAL ACADEMY.

(Lake Geneva, Wisconsin).

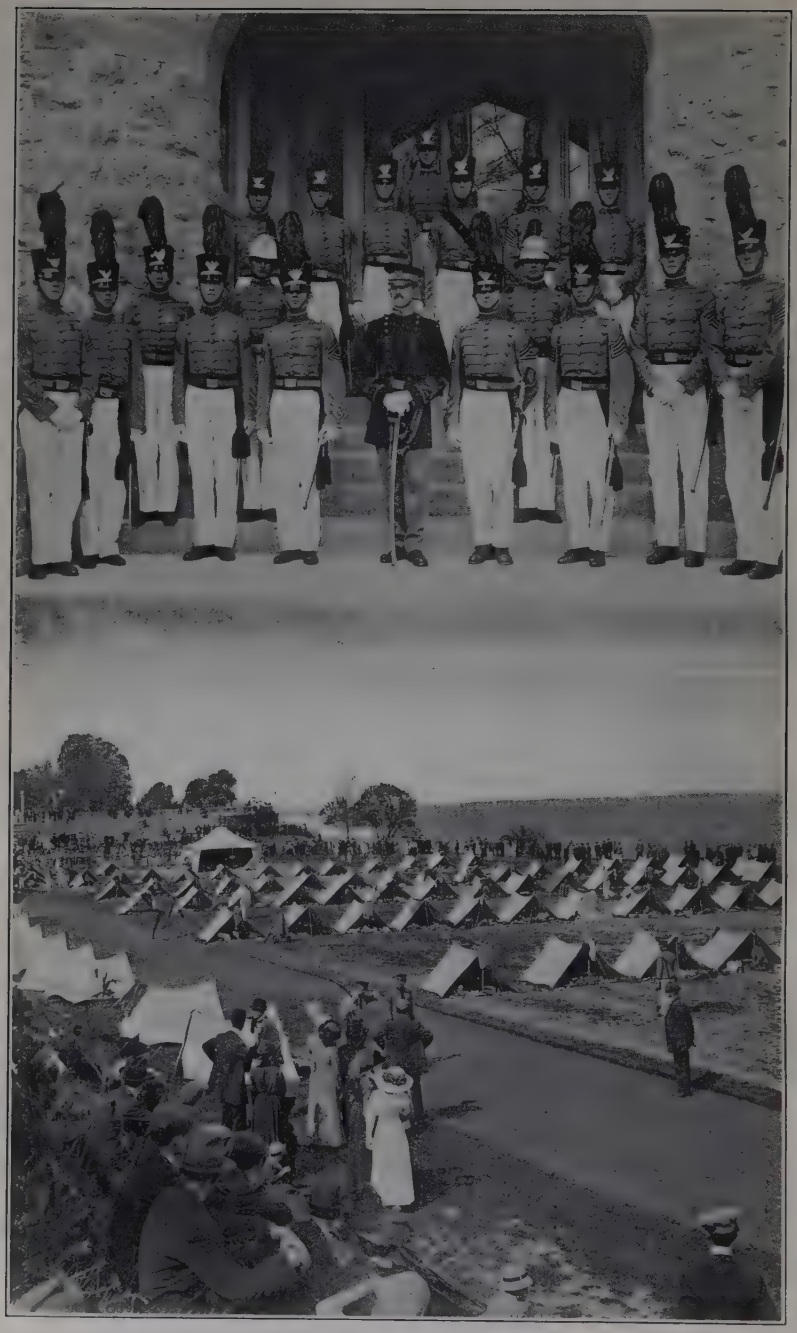
The Northwestern Military and Naval Academy was founded at Highland Park, Illinois, in 1888, by Colonel H. P. Davidson, as the Northwestern Military Academy. The winter term of the School is still held at Highland Park pending the completion of the new buildings at Lake Geneva. At present the buildings at the latter place are only temporary but the construction of permanent buildings is under way

The attendance at this institution numbers 100 cadets who are organized as a battalion of infantry of three companies with a band. All students are required to take the theoretical and practical course in military instruction, which comprises military calisthenics; first aid to the injured; hygienic care of the person; military courtesy; military topography and sketching; scouting; visual signaling; writing messages, reports and field orders; military history, and military policy of the United States; simple exercises in the form of map problems, tactical walks; map maneuvers and terrain exercises, in addition to instruction in the Small Arms Firing Regulations. Manual of Guard Duty; Infantry Drill Regulations and Artillery Drill Regulations. There is also a course of instruction in elementary naval exercises.

Promotions in the military department are made from an eligible list which is based upon the standing in scholarship, deportment, drill, class and service. The Academy has a unique equipment of automobiles, motorcycles and bicycles equipped for military service. The institution lays claim to the distinction of having the only automobile battery organization of its kind in the world. In addition to the complete military equipment of the institution, the Secretary of the Navy has recently authorized the issue of six naval cutters completely equipped with both sails and oars and each boat mounting a Hotchkiss 1-pound rapid-fire or a gattling gun. The time devoted to military instruction both practical and theoretical, is six hours per week.

This Institution has always been progressive in everything pertaining to its military as well as its other departments. The battalion spends twelve weeks of each year under canvas and devotes as much time, probably, to field work, practice marches, topographic work, etc., as any similar school.

Three years ago the institution embodied the Naval feature and the Navy Department in addition to furnishing the equipment above mentioned has also supplied navigating instruments, etc. A graduate of this institution is expected not only to be capable of commanding an infantry company, but to be conversant with the handling of small boats, the reefing of block and tackle, tying knots, splicing ropes and the use of nautical instruments.



THE COMMANDANT AND CADET OFFICERS, AND PART OF CAMP OF CADETS ON OCCASION OF ANNUAL PRACTICE MARCH, ST. JOHN'S MILITARY ACADEMY, DELAFIELD, WISCONSIN.

ST. JOHN'S MILITARY ACADEMY.
(Delafield, Wisconsin).

This Academy was organized in 1884 and incorporated in 1889. The military department was instituted in 1886 and the school has been since this time essentially a military school. It has enjoyed the distinction of being one of the ten "distinguished institutions," so designated by the War Department inspectors since 1910 (See Appendix V). Under the new classification it will be known as a "Class M" school.

Every student is required to enroll in the miltary department, which now numbers 230 cadets organized as a battalion of infantry, of four companies, with a cadet band.

Military instruction is both practical and theoretical and proficiency in both forms of instruction is required for graduation. This instruction is confined, with some minor exceptions, to infantry work only, the authorities of the Academy believing that only thus can a high order of excellency and interest in the military work be maintained. Military field engineering and topography and military signaling are given as electives in the military curriculum, and detachments are maintained in each branch. These detachments are made up of upper classmen entirely and this serves to supplement the infantry work.

St. John's is located in a beautiful lake region of Southern Wisconsin and has a patronage that extends to every state in the Union, Mexico and Canada. It is among the younger schools of the country, as will be noted from the date of its founding, and has the somewhat unique distinction of being still under the management of its founder, the Rev. Sidney C. Smythe.

Officers of the Army are detailed to the following institutions as professors of military science and tactics under the provisions of Section 1260, R. S., and the Acts of Congress approved May 4, 1880; August 6, 1894; February 26, 1901; and April 21, 1904. (See Chapter III.) The officers so detailed do not come under the apportionment of officers to states, but are in addition to the 100 allowed under the apportionment regulation. Retired officers only are eligible for detail to these schools.

CALIFORNIA.

THE HITCHCOCK MILITARY ACADEMY.

(San Rafael, California).

This School was founded in the early part of 1878 by the Reverend William Dixon of San Rafael, who conducted the School until 1888, when he was succeeded by Mr. Octavius Bates. The School at that time was known as the Selborne School. Mr. Bates was succeeded in 1898 by Reverend Charles Hitchcock. In April of the succeeding year the buildings were totally destroyed by fire and the school continued in temporary quarters and completed the school year. The present site was secured in 1899, the name was changed to Hitchcock School and the military department was established. Mr. Rex W. Sherer who is now president, performed the duties of the first commandant. In 1907, the School was incorporated as the Hitchcock Military Academy. Military drill takes place every day except Saturday and Sunday, and there is a dress parade and review every Friday. The military instruction is confined largely to that of infantry tractics and the cadet organization conforms to the War Department requirements.

MOUNT TAMALPAIS MILITARY ACADEMY.

(San Rafael, California).

The Mount Tamalpais Academy is twenty-four years old and now numbers approximately 125 cadets in attendance. These young men are organized as a battalion of infantry of two companies. There is also a troop of cavalry and a platoon of artillery selected from members of the infantry battalion. The cadets who form the troop are drilled on horseback two days a week on which days they are excused from other military work. The platoon of field artillery also drills mounted. The institution holds an annual encampment in September of each year for one week on the banks of the Russian River.

ST. MATTHEW'S MILITARY SCHOOL.

(Burlingame, California).

This school was founded in 1866 by Rev. Alfred Lee Brewer, D. D., and has therefore just completed its 47th year. It is situated in the town of Hillsborough, a mile and a quarter from Burlingame, California, which is the post office and railroad station for the school.

The military feature was started in 1870. At present there are 80 students undergoing military instruction. The school is classed as "Class A." (See Appendix V).

The instruction given is exclusively infantry, to which eight hours per week are devoted.

MISSOURI.

MISSOURI MILITARY ACADEMY.

(Mexico, Missouri).

This institution was founded in 1889. It is a distinctive military school with a system somewhat modified from that found at West Point. The School has the system of instruction which is in use in most other military schools which provides for the thorough inspection of cadets and their quarters daily, with a weekly inspection which is much more minute and exacting. The cadets are at all times under military discipline; they live in barracks and exercise a complete system of administration conforming in many respects to the customs of the service in the United States Army. The practical course of instruction in the military department includes Infantry Drill Regulations, Field Service Regulations, Manual of Guard Duty, Small Arms Firing Regulations, field engineering, Butt's Manual, bayonet exercises, signaling, wall scaling and First Aid to the Injured. These exercises occupy five periods each week. The theoretical instruction includes recitations in these subjects and lectures on military topics.

In accordance with Section 59, General Orders No. 13, governing the organization of the National Guard of Missouri, the Missouri Military Academy has been constituted a post of the National Guard of the State. The teachers hold State commissions under this act, and graduates are commissioned brevet second lieutenants in the State military organization. The regulation also provides that the school shall be inspected annually by the Adjutant General of Missouri.

NEW JERSEY.

WENONAH MILITARY ACADEMY.

(Wenonah, New Jersey).

The Wenonah Military Academy was organized, under private patronage, in the Fall of 1904. Its military department was instituted at the time of its organization. The school has but recently come under Government supervision. It was classified by the War Department in 1913, in grade C. The cadets, seventy in number (Feb., 1914), are organized into a battalion of two companies, with a full staff of officers and a cadet band of ten pieces. Five hours a week are devoted to prac-

tical military instruction, excluding the time given to callisthenic exercises and the minor formations. Special classes in theory are also conducted. The courses at various times in the history of the school have embraced instruction in the service of the infantry, cavalry, artillery, signal corps and sanitary service. Instruction at the present time is limited to the study and practice of the first; but the school is equipped, at any time, to pursue courses in the last three branches of service.

The Academy plant and general equipment, in proportion to the number of cadets, is most ample. The school is located in the center of one of the most beautiful towns of southern New Jersey; has a spacious and trimly kept drill park to the immediate front of the main building, and has the largest combined armory and gymnasium of any school in that State.

OHIO.

MIAMI MILITARY INSTITUTE.

(Germantown, Ohio).

The first plans for this institution were laid as early as 1874 when certain citizens of the town of Germantown entered into an agreement with the district synod of Ohio of the Evangelical Lutheran Church for the founding and maintenance of a synodical school. Subscriptions were secured for a college fund and the buildings were constructed the following year. Before the second year of the school session had been completed the district synod, which had agreed to provide a faculty and attend to the maintenance of the school, abandoned the enterprise. The building was acquired by the village of Germantown and was used for armory purposes for about ten years. On the fourth of February, 1886, the new school was founded by its present head, Orvon Graff Brown, in an agreement with the village council, and occupied the original building for many years. The institution was chartered in 1887 by the State of Ohio as "Twin Valley College." As increasing attention came to be paid to the military side of the school's educational plan, the name was changed to "Miami Military Institute of Twin Valley College."

In 1906 the Secretary of War detailed an officer of the Army to be professor of military science and tactics. At all inspections made by the War Department it has been classed "A."

The time given to military instruction is four hours' practical exercises per week. Formations, ceremonies, etc., which occur other than the regular drill hour are in addition. There are lectures on mili-

CADETS OF MIAMI MILITARY INSTITUTE, GERMANTOWN, O., ON RIFLE RANGE, CAMP PERRY, OHIO.

tary subjects at selected periods. The cadets are organized into a battalion of infantry of two small companies. At the present time there are about 60 students in attendance.

CHAPTER VI.

THE ARMY WAR COLLEGE.
(Washington, D. C.).

"A great captain can only be formed by long experience and intense study; neither is his own experience enough—for whose life is there sufficiently fruitful of events to render his knowledge universal."—*Archduke Charles.*

HISTORICAL SKETCH.

The establishment of the Army War College was first proposed by Secretary of War Elihu Root in his annual report for 1899. A board of officers was appointed whose duty was to prepare regulations for such an institution. This board was appointed in February, 1899, with Brigadier General William Ludlow, a graduate of the United States Military Academy, at West Point, and an engineer officer, as its chief. In November, 1901, the present Army War College was formally established under the provisions of Paragraph 7, General Orders 115, published by the War Department that year.

The first legislative action relating to this college is found in the Army Appropriation Act of May 26, 1900, where $20,000 is made available for expenses incident to its establishment. Appropriations have been made annually since that year for the maintenance of the institution.

In 1902 Congress appropriated $400,000 for the Army War College building at Washington Barracks, District of Columbia, to which amount was added $300,000 in 1904. The building was under construction from 1903 to 1907 and was occupied on the 20th of June of the latter year.

The purpose of the college is to make a practical application of knowledge already acquired and not to impart academic instruction.

The objects are:

(a). The direction and coordination of military education in the Army and in civil schools and colleges at which officers of the Army are detailed under acts of Congress, and the extension of opportunities for investigation and study in the militia of the United States.

(b). To provide facilities for and to promote advanced study of military subjects and to formulate the opinions of the college body on the subjects studied for information for the Chief of Staff.

The personnel of the College consists of a president, to be assigned to that duty by the Secretary of War, and the officers for the time being of the War College Division, General Staff. Two directors and a secretary of the College are selected from the permanent personnel of the division.

The temporary personnel (or student body) consists of such officers not below the grade of captain as may be detailed to that duty by the War Department. The tour of duty of these officers may not exceed 12 months, beginning September 1st of each year.

The interior economy of the college is regulated by the President and directors, subject to the approval of the Chief of Staff.

The War College is a part of the military educational system of the United States. Its purpose is, expressed in greater detail, the unification of the instruction given at the various Service Schools; the development of these institutions, and the most advanced professional study of military problems, real and imaginary. The officers of the College exercise a general supervision of the courses of study in each of the Service Schools. This supervision also extends to all civil institutions of learning to which are detailed Army officers as professors of military science and tactics.

The faculty of the War College studies the military organization of the United States and compares it with that of the organizations in other armies of recognized efficiency, with an eye to its betterment, to its complete understanding of its practical efficiency of operation. It constitutes an advisory board to which the Secretary of War may turn at any time for details and recommendations.

An important function of this institution is the study of plans of campaigns, and the accumulation of military information pertaining to the nations of the world.

One of the principal duties of the College is to outline and to complete in detail the plans for prospective wars, making it only a matter of issuing orders to start all the machinery of the War Department in the event the prospective materializes into actual war.

ORGANIZATION.

The personnel of the War College, as stated in the historical sketch, consists of a president, who is a general officer, two directors (who are officers of the General Staff, the senior of the rank of colonel and

the junior not below the rank of lieutenant colonel), a secretary, who is an officer of the General Staff, the officers of the General Staff on duty in the third division, and such students as may from time to time be named in orders from the War Department. In contradistinction to the students so named the other officers on duty at the War College are known as its "permanent personnel."

DUTIES OF PERMANENT PERSONNEL.

The work of the permanent personnel consists of:

1. The preparation of projects involving the organization, mobilization, and concentration of troops, general strategic plans, and preliminary operations.

2. The preparation of confidential strategical problems, involving mobilization and concentration, for officers especially designated by the Chief of Staff.

3. The preparation of tactical problems, to be solved jointly by officers of large posts, and the critical examination of the solutions of the same.

4. The preparation of tactical problems for the post-graduate course in the garrison schools (Chapter XII).

5. The critical examination of essays, pertaining to the post-graduate course in the garrison schools, forwarded by division commanders in accordance with instructions.

6. The direct supervision under the Chief of Staff of the courses and methods of instruction at post, garrison, and service schools, and the Staff College, including the approval of text books where such are used.

7. The supervision of the military departments of schools and colleges at which officers of the Army are detailed as professors of military science and tactics, and for this purpose the examination of reports of inspectors at these institutions (Chapter III).

8. The annual classification of schools and colleges at which officers of the Army are detailed as professors of military science and tactics.

9. The preparation of critical analyses of foreign military systems or important parts thereof, to be published from time to time as the Chief of Staff may direct.

10. The regulation and conduct of Army maneuvers, and (in conjunction with naval officers) of those jointly conducted by the Army and Navy.

STUDENT OFFICERS.

The students at the War College are selected by the Chief of Staff and detailed by orders from the War Department, in such number as may be expedient. The officers designated are not above the rank of major or below the rank of captain, preference being given to graduates of the Staff College at Fort Leavenworth, Kansas, as long as there are available such graduates of the grades to which the details are restricted.

The following order governs the detail of student officers for duty at the War College:

GENERAL ORDERS No. 13.

WAR DEPARTMENT,
WASHINGTON, *February 27, 1914.*

I—The following rules will govern the detail of officers at the Army War College, beginning with the class that will enter the college in August, 1915:

1. Selections for the detail will be made by the Chief of Staff, under the procedure hereinafter set forth, from available officers who may desire to take the course at the college. The total number of officers detailed in any year will not exceed 30, and the number detailed from the different arms, corps, and departments will not exceed 13 from the Infantry, 7 from the Cavalry, 3 from the Field Artillery, 3 from the Coast Artillery, 2 from the Corps of Engineers, and 1 from the permanent personnel of the staff departments. In addition, the Navy Department will be invited to designate 1 officer of the Navy and 1 officer of the Marine Corps to pursue the course.

2. Officers desiring to take the course will make application for detail to The Adjutant General of the Army through military channels in time to reach The Adjutant General's Office not later than January 1 of the year in which they desire to take the course. A list of the names of the applicants will be submitted to the president of the Army War College for consideration and recommendation.

3. Of the officers selected, graduates of the Army Staff College, who have had not less than two years' service with their arm or corps since graduation from the Army Staff College, will be considered eligible without further examination as to their qualifications.

4. Of the remaining applicants considered there will be selected a sufficient number, who will be notified to prepare themselves for a written examination to be held during the month of April. The scope of this examination will be announced in bulletins. Examination papers will be furnished the selected officers at the proper times, together with necessary instructions. On the completion of the examination, the papers will be returned to The Adjutant General for reference to the president, Army War College, for consideration and recommendation to the Chief of Staff as to the fitness or unfitness of the applicants as shown by these examinations. Except as specified in section 3, selections for detail to the Army War College will be made from those officers who pass a satisfactory examination.

II—In the selection of officers for the class to enter the Army War College in August, 1914, the rules laid down in Paragraph I will govern, in so far as they may be applicable. The application referred to in section 2 must be made so as to reach The Adjutant General's Office not later than April 15, 1914. The examination prescribed in section 4 will take place during the month of May.

III—If at any time, not earlier than December 1 of each college year, any officer pursuing the course at the Army War College shall be deemed unfitted for any reason to continue the course and shall be so reported by the faculty he will upon recommendation of the president, Army War College, be relieved from duty at the college forthwith.

BY ORDER OF THE SECRETARY OF WAR:

LEONARD WOOD,
Major General, Chief of Staff.

OFFICIAL:
GEO. ANDREWS,
The Adjutant General.

COURSE OF STUDY.

The course of study consists of:

(a). The critical study of an approved plan of operations, with a view to its confirmation or modification.

(b). The assumption of the original conditions on which an approved plan was based, and the preparation of an independent plan, the two to be subsequently compared and discussed.

(c). In each case a minute and detailed study of a certain number of days' operations at an important period of the plan, involving the preparation of every daily order of importance to be issued during the period, directing the position and movements of wagon trains of every kind, the tactical arrangement of marches (assignment of roads to columns, arrangement of columns on the roads, etc.), length of marches, tactical arrangement of camps and bivouacs, etc.

(d). In connection with the above, the discussion of special problems encountered by the technical troops, of the tactical use of the infantry, cavalry and artillery under the given conditions, the supply of ammunition, the disposition of the wounded, etc.

(e). A war game, in which an actual campaign (of the Civil War, for instance) will be taken, all the initial conditions of the campaign being assumed to exist now as they actually did, except that the organization, armament, equipment, and tactical methods are those of the present day, the probable result being worked out on the map.

(f). Informal lectures and general discussions of current military events and developments.

There is no formal opening or ending of the term of instruction at the War College, nor are there any examinations held or diplomas given at the end of the course. The course is essentially one of applied knowledge on the part of capable and qualified officers, and the announcement in orders that an officer has been selected for this course of advanced work is deemed by the War Department sufficient recognition of his professional attainments.

Graduates of the Army War College are exempt from examination for promotion for a period of six years.

CHAPTER VII.

THE ARMY SERVICE SCHOOLS.
(Ft. Leavenworth, Kansas).

"However high may be the duties which come to an officer in the departments of education, instruction, administration, and scientific investigation, he nevertheless enters upon the activity corresponding to the real character of his calling only when he exercises command of troops and when he exercises such command in the presence of the enemy. It must be the aim of every officer to become at some time a commander, to become a responsible leader in action.

"For this purpose he needs, in addition to the development of peculiar personal characteristics and in addition to experience and service with troops, before all else, a thorough tactical education.

"The tactical instruction which an officer gains in military schools and with troops is not alone sufficient. Study on his own part must be added. The tactician has need, in his profession, of steady and uninterrupted training in order both to preserve and to develop his powers once he has discovered them. The commander receives his education not only in the saddle, but also at his desk. This is proved by many illustrious examples of celebrated commanders.

"Military history offers inexhaustible material to the officer who wishes to pursue his education in tactics. It leads him directly to the conditions of war and, by showing the ever-changing relations between cause and effect, brings him to a realization of the conditions upon which success and failure depend.

"Military history, however, offers only what is finished and completed. The mental activity exercised in its study is a reproductive one and its value to the student depends directly upon the extent to which he is able to grasp and synthesize the real conditions and their relations and to enter into the thoughts of the leading personalities.

"The education of the tactician demands, in addition to this, a productive activity, in the exercise of which he is confronted by questions still unsolved, which he himself must solve. Therein lies the worth of tactical problems, which are the more valuable the nearer the conditions approach those of actual warfare and the more latitude they give for the exercise of judgment and decision. They must provide the student with the means of developing his tactical judgment and of gaining practice in the use of forms.

"The tactician needs a thorough knowledge of the fundamental principles to build on as well as the faculty of rightly applying them. Through uncultivated genius alone, which pays no attention to form, he will never become equal to the difficult problems of a serious crisis. Still less will the mere theorist be able to fill the position if his powers be limited to the knowledge of formal tactics.

"That power of decision and action which is able to cope with all the situations of war is gained only by developing the ability to form a judgment in technical matters with certainty.

"Therefore tactics is an art to be learned. Like every other art, it demands a measure of talent, and the highest stage of perfection can be reached only by those highly gifted at the start. In spite of this, however, the less gifted can, through practice, gain a considerable degree of facility, and many a tactician has only begun to find out his powers as he advanced in the knowledge of his profession. Here, also, one may say: 'industry is genius.'

"It should therefore be the aim of every officer to progress through the individual study of tactics and thus to prepare himself for the highest duties of his calling."—*Capt. Albert Buddecke, Great General Staff, German Army. Translation by Capt. A. L. Conger, U. S. Inf.*

There is located at Fort Leavenworth, Kansas, a group of schools known as the Army Service Schools. The basic of these institutions is The Army School of the Line. Affiliated with it is the Army Staff College, The Army Signal School, The Army Field Engineer School, and The Army Field Service and Correspondence School for Medical Officers. The School of the Line and its affiliated schools will be treated in this chapter each under a separate head.

The object of these schools is the "better preparation of the mobile army for war." The character of the work performed is in a large measure post-graduate, as most of the student officers are graduates of West Point or of civil institutions of learning.

HISTORICAL SKETCH.

It is fitting that something of the early history of the institutions discussed in this chapter be given.

The foundation for an Infantry and Cavalry School was laid by General William Tecumseh Sherman, Commanding the Army of the United States, in orders issued from his headquarters in 1881, in which he directed that necessary measures be taken for the establishment of a "School of Application for Infantry and Cavalry," similar to that in operation for the artillery at Fortress Monroe, Virginia. The code of regulations for the latter school as far as applicable was adopted for the government of this school until such time as the staff of this newly created institution could prepare and submit a code for its own use.

The personnel of the school was to consist of three field officers of infantry, with not less than four companies of infantry, four troops of cavalry and one battery of light artillery and the officers attached for instruction. These latter were to be officers detailed for instruction, from each regiment of cavalry and infantry of the Army, with rank not to exceed that of lieutenant and who had not previously received professional instruction, officers so detailed to be attached to the companies composing the school and to perform all the duties of company officers in addition to those of instruction.

The senior officer present for duty was in command of the school and the next five officers in order of rank composed the staff.

The school was governed by rules of discipline prescribed for military posts and was subject to inspection of department and division commanders, but in matters purely pertaining to the course of instruction it was exclusively subject to orders of the General Commanding the Army.

Col. Elwell S. Otis, of the 20th U. S. Infantry (later Major General U. S. Army), was assigned to the command of the post and to him fell the duty of organizing the school. He reported at Fort Leavenworth for this work in November, 1881.

Under date of November 22, 1881, Gen. Sherman addressed the following note to Lieut.-General Philip A. Sheridan who was then commanding the Division of the Missouri:

HEADQUARTERS ARMY OF THE UNITED STATES,
WASHINGTON, D. C., NOVEMBER 22, 1881.

"My dear Sheridan:

I am just in receipt of your letter of the 19th with the tabular list of the officers comprising the new School of Application at Leavenworth.

I need hardly say that I regard it as admirable, and I feel sure that this school will become the best practical military school of all in the United States.

I want this new school to start out with the doctrine that service with troops in the field, in time of peace, is the most honorable of all, and the best possible preparation for high command when war does come, as it always does, suddenly. I don't want to meddle with this new school or to have it the subject of legislation, because if this is done, like West Point, it will be made political and taken out of our control.

The school should form a model post like Gibraltar with duty done as though in actual war, and instruction by books be made secondary to drill, guard duty, and the usual forms of a well regulated garrison.

I want you and General Pope to feel that I am well pleased with all that has been done, and that I have abundant faith in the future.

As ever, your friend,
W. T. SHERMAN."

The staff of the school submitted to the General of the Army a code of regulations similar to the one governing the Artillery School at Ft. Monroe, together with a program of instruction. That official "approved in part, and disapproved in part, but the recommendations made were all part and parcel of a system which required the approval in its entirety to make it effective, it was too advanced and complex as an initiative system for a school of this character," said Otis in his annual report for 1882.

In 1882, Gen. Sherman published in orders the organization of the school which contained regulations for its government and prescribing a course of instruction to be pursued.

These orders charged the commandant with the responsibility for the practical instruction of every soldier and officer of his command in everything which pertained to Army organization, tactics, discipline, etc. These, the General of the Army said, must be his first care, and the second in importance was to be the theoretical instruction, which ought to precede a commission, but which is not always the case. The theoretical instruction was to include reading, writing, grammar, arithmetic, geography, algebra, geometry and suffi-

cient trigonometry for the measurement and delineation of ground, and such history as every young gentleman should be presumed to know. The science and tactics of war, in so far as they may be acquired from books, was also to be embraced in the theoretical instruction.

This order also provided that student officers on reporting be examined by the school staff and divided into two classes, the first requiring only the higher instruction and the second the whole course of two years.

In concluding his order Gen. Sherman makes the following reference to the future of student officers who may acquit themselves with credit while pursuing the course of instruction prescribed:

"The rank of the officers concerned is determined by law, and cannot be modified by anything at this school. Yet it is well known that the superior officers of the army are always most willing to advance young officers of special zeal, intelligence, and acquirement; therefore the instructors will keep daily notes of application and progress; about the 1st of January of each year there will be a public examination, by the commanding officer, the staff of the school, and such detailed officers as have had charge of classes, at which examination the class will be arranged according to general merit, and special mention made of each officer who deserves it, a report of which will also be made and forwarded for publication and such use as may hereafter be determined."

The office of secretary of the school was created by post orders in February, 1882, and was later provided for in the regulations adopted for the school. Second Lieutenant C. H. Murray, 4th Cavalry (now Col. of the 12th Cavalry) was detailed under this order as the first secretary of the school.

In December, 1885, an order was issued from the War Department directing that the General Commanding the Army appoint a board of officers to attend the examination at the close of each two-year course of instruction. It was the duty of this board to witness as far as practicable the final examination and exercises of the graduating classes and to examine into the actual condition of the school respecting discipline, methods of instruction, etc. The purpose of this was suitably recognized by announcing in orders the merits of officers and the diligence with which they were pursuing their course of instruction at the school.

The name was changed from "The School of Application for Cavalry and Infantry" to "United States Infantry and Cavalry School" in June, 1886. Concerning a definite program of instruction Colonel Otis in his annual report of 1883 said:

"No definite program of instruction has yet been adopted, but the studies of each term are fixed upon and arranged after the capacity of the students is carefully estimated. The results of preceding terms determine the scope and character, to a great extent, of the instruction which is to

follow. During the past summer I had concluded that a set of regulations, compact and well defined, might be prepared to govern all duties at the post, and to prescribe the course of study and application for the school. Upon mature reflection, however, it appeared wise to defer action in this direction until a more extended experience of future developments should more clearly manifest what and how much substantial good might be accomplished and by what operations it could be best effected."

In the following year in his annual report he refers to the progress of the work as follows:

"The progress of the year in developing the course of instruction, or really towards the construction of a foundation upon which we may rest a needed permanent institution for military training, is encouraging."

Col. Otis was succeeded in 1885 by Col. Thos. H. Ruger (later Major General, U. S. Army.) In Col. Ruger's report for 1885 he says:

"No system of general regulations for the conduct of the school has yet been adopted.

"As appears from former reports delay in presentation of a system for sanction by superior authority has been made with purpose of taking advantage in their preparation of the results of observation and experience, as indicated by General Orders No. 8, of 1882, Headquarters of the Army. Regulations applicable, not only to the course of instruction, but the management of the school in general, without embracing matters of detail, should, I think, be adopted. I hope, with the aid of the school staff, to submit a code of the kind stated within the present school year.

"As such regulations will necessarily apply to the whole course of instruction and administration of the school, suggestions relating to these subjects are for the present deferred."

No action providing for a program of instruction and permanent regulations was taken until 1887, when a board of officers was convened by orders from the headquarters of the Army to prepare them. General Ruger (promoted Brig. Gen. the previous year) was made the president of this board. The result of the labors of this body was published in Army orders in 1888 and formed the first permanent regulations and program of instruction provided for the school.

In these regulations the division of the student body into two classes was discontinued. The program of instruction was changed and systematized. For the first time in the history of an American Army school practical instruction in minor tactics was introduced.

For the purposes of administration and convenience the school was at this time divided into seven departments, to-wit: Department of Military Art, Department of Engineering, Department of Law, Department of Infantry, Department of Cavalry, Department of Artillery and the Department of Hygiene. The length of the course was not changed, embracing two years as before.

In February, 1890, it was directed in orders from the War Department that preference for the detail of officers for duty as professors of miltary science and tactics at civil institutions of learning

be given to graduates of the U. S. Infantry and Cavalry School. The commandant of the school was also directed to furnish the adjutant general of the Army the names of the three graduates who most distinguished themselves by general proficiency in the prescribed course of study and that all such graduates from the date of the establishment of the school be so furnished. It was further directed that so long as any such graduate continues in the service either on the active or retired list of the Army his name appear in the Army Register followed by the words, "Honor Graduate of the Infantry and Cavalry School, 18——." The number who might be selected as "honor graduates" was increased to five in 1893.

In October, 1891, a revised code of regulations and program of instruction for the school was published in orders from the headquarters of the Army. This revision made no changes of importance.

In his annual report for 1896, Col. E. F. Townsend, 12 Infantry (afterwards Brig. Gen.) the Commandant, made the following recommendation:

"After mature deliberation it has been determined to submit for approval a revision of the regulations by which it will appear that some important changes are recommended, chief among which is the proposed plan of doing away with the Department of Infantry, the Department of Cavalry and the Department of Artillery, and consolidating these with the Department of Military Art. If approved and authorized the school will then be divided into five departments instead of seven as now constituted, and they will be known as the Departments of Tactics, Strategy, Engineering, Law, and Hygiene."

His recommendation was approved and a revised set of regulations and program of instruction was published in orders from the War Department in 1897. Under these orders the senior officer on duty with the school was made the assistant commandant.

Commenting on this new provision the Commandant in his report of 1898 says:

"The post commander as commandant of the school is very busy with his post duties, while the assistant commandant can devote his whole time to supervising the recitations and practical work. This new office I consider a good one and of great assistance to the commandant."

The War with Spain necessitated suspension of work in the school and all officers on duty thereat were ordered to join their respective regiments in the field, excepting only such as were necessary to care for the public interests at the post of Ft. Leavenworth and the school. This closed the first period of the Service School at Leavenworth, which period might very aptly be termed its primary period.

The war with Spain not only closed this school but caused a practical suspension of all theoretical instruction of a systematic character in the Army.

As a result of this war the Army was largely increased both in officers and men. Nearly 1,000 of the new officers came from the volunteers. Most of them had had but very little systematic study of the science of war. Their knowledge of military matters was limited in most cases to that gained while serving with troops during the short period in which the volunteers were in the service of the Government. With a view to meeting this situation, Honorable Elihu Root, Secretary of War, decided to reopen the Infantry and Cavalry School and to greatly enlarge its sphere of usefulness. In his annual report for 1901 under the head of "Military Instruction" the Secretary said:

"Existing conditions make this subject one of primary importance at the present time. . . . In the reorganization of the enlarged army about 1,000 new officers have been added from the volunteer force, so that more than one-third of all the officers of the army have been without any opportunity whatever for systematic study of the science of war. On the other hand, the rapid advance of military science; changes of tactics required by the changes in weapons; our own experience in the difficulty of working out problems of transportation, supply and hygiene; the wide range of responsibilities which we have seen devolving upon officers charged with the civil government of occupied territory; the delicate relations which constantly arise between military and civil authority; the manifest necessity that the soldier, above all others, should be familiar with the history and imbued with the spirit of our institutions—all indicate the great importance of thorough and broad education for military officers.

"It is a common observation, and a true one, that practical qualities in a soldier are more important than a knowledge of theory. But this truth has often been made the excuse for indolence and indifference, which, except in rare and gifted individuals, destroys practical efficiency. It is also true that other things being equal, the officer who keeps his mind alert by intellectual exercises, and who systematically studies the reasons of action and materials and conditions and difficulties with which he may have to deal, will be the stronger practical man and the better soldier.

"I cannot speak too highly of the work done in our service schools for a number of years before the war with Spain. It was intelligent, devoted and effective, and produced a high standard of individual excellence, which has been demonstrated by many officers in the active service of the past four years. There was, however, no general system of education. The number of officers who could avail themselves of the very limited accommodations afforded was comparatively small. The great body of officers were confined to the advantages offered by the post schools, called 'lyceums,' which were, in general, unsatisfactory and futile. There was no effective method by which the individual excellence demonstrated could be effectively recognized, or the results attained be utilized."

As a result of careful investigation and consideration of the subject of military education a general scheme, or plan, was embodied in orders from the War Department in 1901. Under the provisions of this order the Infantry and Cavalry School at Ft. Leavenworth, Kansas, was directed to be enlarged and developed into a

General Service and Staff College. It was hereafter to be a school of instruction for all arms of the service, "to which shall be sent officers who have been recommended for proficiency attained in the officers' schools conducted in the various posts." Under the provisions of this order the school was hereafter to be more of a post graduate school than an institution for imparting knowledge of elementary nature. This really marked a revolution in the whole general plan and scheme of military education within the Army.

Under this new order the College was directed to be opened September 1, 1902, and the instruction was limited to a period of one year. It also provided for a permanent garrison for the General Service and Staff College (successor to the Infantry and Cavalry School) of four companies of Engineers, four troops of Cavalry, three batteries of Field Artillery, twelve companies of Infantry, a band, Signal Corps detachment, Hospital Corps detachment, post noncommissioned staff, and such field officers and instructors and student officers, in addition to those belonging to the organizations serving at the post, as might be ordered from time to time. At this time the school was also opened to officers of the National Guard of the several states, to former officers of volunteers, and to graduates of civil institutions of learning having officers of the Army as professors of military science and tactics.

The college staff was directed by the War Department to recommend upon the conclusion of the annual examination, such student officers as had especially distinguished themselves, for further instruction in the Army War College at Washington.

The General Service and Staff College was opened in September, 1902, as directed. The class entering numbered twenty-nine officers of cavalry and sixty-five officers of infantry.

To meet needed changes in the organization of the college a reorganization was directed in 1904 in orders from the War Department. These orders provided for three separate schools to be known as "The Infantry and Cavalry School," "The Signal School," and "The Staff College."

General Bell, the Commandant, in his annual report for 1904 says that considerable investigation and discussion preceded this reorganization. The following comments by this officer are of interest as they include considerable of the history of the school, with particular reference to the part played in its development by Col. Arthur L. Wagner:

"Prior to assuming charge of the General Service and Staff College as commandant, the undersigned was ordered to Washington for consultation. He was directed to study the conditions then existing at the college and to make a report upon its requirements in bringing about the enlargement and development enjoined and contemplated in General Orders No. 155, Headquarters of the Army, 1901.

"While en route to the college, an interview was had with Colonel A. L. Wagner, General Staff, who had rendered much valuable service in the development of the old Infantry and Cavalry School and was thoroughly familiar with its course and system of instruction. Enlarging and developing this school into a general service and staff college was fully discussed at this interview.

"A return to the old two-year course had been recommended to the War Department, but it was suggested that, instead of having a class matriculate and graduate every two years, one should matriculate and one graduate each year, thereby having always at the institution two classes under instruction, a first and a second class. This suggestion was concurred in by the College Staff, but some objection was made to the plan because the additional number of instructors and student officers required would too greatly increase the number of officers then on detached service from infantry and cavalry regiments. Colonel Wagner afterwards prepared a substitute plan (devised to accomplish this same and other purposes) and incorporated it in a memorandum for the commandant.

* * * * *

"These ideas were subsequently adopted in G. O. 115, War Department, current series. During the preparation of this order, Colonel Wagner was ordered to visit Fort Leavenworth for the purpose of discussing with the college staff the contents of said order, and returned to Washington taking with him the results of the investigation and discussion here had.

* * * * *

"It had been recognized that the words 'general service' in the name of the college were misnomers, for it was not a general service school but in reality a school for infantry and cavalry officers only, as other branches of the army had their own special service schools. Prior to the preparation of the final draft of G. O. 115, considerable discussion took place as to an appropriate name for the school. It was finally decided in order to round out and complete, in a systematic and uniform manner, the series of service schools for all arms of the service, to divide the General Service and Staff College into two schools, an 'Infantry and Cavalry School,' as formerly, and a 'Staff College,' and to establish a 'Signal School,' all three to be situated at Fort Leavenworth, to be coordinated under the control of the commandant, with one secretary, and one staff, so far as practicable.

"Sufficient time has not been had since the order was published, to organize and provide facilities for the accommodation of the Signal School and its personnel. At the date of this report (September 15) this school has consequently not been established."

Under the provisions of General Orders No. 40, War Department, 1905, the name of the school was again changed to "The United States Infantry and Cavalry School" and a revised program of instruction was announced. This order changed the method of selecting the officers for the school course by requiring all officers so selected to have not less than four years' service in the Army with grade not above that of captain, as follows: One from each regiment of infantry and cavalry serving within the continental limits of the United States, not to include regiments serving in Alaska, but additional officers should be detailed from regiments of the same arm of the service at home stations, which had recently returned from service outside the continental limits. In a similar manner the chief

of engineers was directed to recommend annually two, and the chief of artillery not less than three nor more than five officers with the same limitations as to rank and length of service. Officers of the National Guard were also admitted under the provisions of this order.

The following extract from the report of the commandant for 1906, is expressive of the coordination which these schools were rapidly acquiring:

"The three schools at Fort Leavenworth are coordinated and inseparable parts of one system. They afford to the body of student officers an admirable opportunity to differentiate themselves and determine relative merit in a fair and equitable competition. This is the way in which an opportunity can be given them for achieving distinction, and the results afford the War Department the best obtainable means of judging the comparative merit and usefulness."

In 1907, the name of the school was changed to "The Army School of the Line." The method of selecting the student officers was again changed so that only officers of a grade no lower than captain with not less than five years' service were eligible for selection. The Chief Signal Officer was authorized to recommend one officer from his corps for the course at this school. The artillery arm of the service, having been divided into field and coast artillery, the new order provided that no more than five officers of the former were to be chosen for the course of instruction. The order also published a revised program of instruction. Several changes in the rules and regulations for the government of the schools and in the curricula have since been made. At the present time the organization of these schools and the course of study prescribed are as given in this chapter.

The Signal School was created by General Orders No. 115, 1904, (Jan. 27), but was not organized until August 25th of the following year owing to a lack of facilities and the necessary accommodations. In 1907 this school was officially designated as "The Army Signal School."

The Army Staff College was established pursuant to this same general order (No. 115, 1904). Its object is to instruct selected officers in the duty of the general staff of the Army, to improve their qualifications as instructors, and to prepare them for duty in the Army War College. This school also delves into research work and investigations of military inventions.

ORGANIZATION AND ADMINISTRATION OF THE ARMY SERVICE SCHOOLS.

THE COMMANDANT.

There is named by the Secretary of War as commandant of the Army Service Schools an officer of the Army of grade not lower than brigadier general, who is specially selected for this duty.

THE ASSISTANT COMMANDANT.

The senior line officer of the staff of the schools is the assistant commandant. He is charged with the immediate administration of the schools.

THE SECRETARY.

The secretary is an officer not below the grade of captain. He has the custody of the records of the schools, disburses the money allotted by the War Department for their support and is responsible for the property. He is assisted by such officers, enlisted men and civilians as are deemed necessary by the commandant.

THE ARMY SCHOOL OF THE LINE.

The Army School of the Line is the basic school. Its object is the instruction of specially selected officers from the line of the Army in the proper methods employed in the leading and care of troops in time of war, and their training in time of peace.

The Assistant Commandant of The Army Service Schools is the director of this school.

STUDENT OFFICERS.

Selections of student officers for the School of the Line are made as follows:

(a) One officer of grade not lower than that of captain and of not less than five years' commissioned service from each regiment of cavalry, field artillery, and infantry serving within the limits of North America, and the Hawaiian Islands, and such other officers as are hereinafter specified. Officers are not detailed from regiments serving or about to serve in the Philippine Islands, but in lieu thereof additional officers may be detailed from regiments of the same arm which have most recently returned or are about to return from Philippine service to home stations; but not more than five officers are detailed from the field artillery for any one class.

(b) The commanding officer of each regiment of cavalry, field artillery, and infantry serving within the limits of North America and the Hawaiian Islands submits directly to The Adjutant General of the Army, not later than January 1 of each year, the names of two officers (one as principal and the other as alternate) recommended for instruction at the school. From the officers thus recommended selections are made by the Secretary of War.

In making recommendations of officers for detail as students at The Army School of the Line, regimental commanders comply with the provisions of the following requirements:

That an officer who is on detached service and will have been absent from his regiment for more than two years at the time of the beginning of the annual session of the school (September 1) is not considered available for detail by the War Department and will not be designated.

That an officer who has heretofore been graduated at The Infantry and Cavalry School will not be designated.

That regimental commanders will ascertain before designation whether the detail is desired, and that no officer will be designated who does not desire the detail.

That where no qualified officer in the regiment desires the detail, that fact will be reported and none designated.

That no officer will be designated until he first shall have passed a physical examination at his post and been found by the medical officer or officers to be in good health, and that no officer suffering from any disease of the eye will be designated.

The certificate of a medical officer as to the designated officer's physical condition will in all cases accompany the regimental commander's recommendations.

(c) In a similar manner the Chief Signal Officer of the Army may annually recommend one permanent officer of his corps and the Chief of Coast Artillery may recommend annually three officers of the Coast Artillery Corps, with the same limitations as to grade and length of service.

In addition to the above, the following extracts from correspondence of the War Department with regimental commanders show clearly the material to be considered in naming student officers. The "Infantry and Cavalry School" mentioned in this correspondence has been succeeded by "The School of the Line":

"The school shall be officially known as the Infantry and Cavalry School. Its object is to instruct selected officers of the infantry and cavalry in the duties of those arms in war, and in the general military knowledge needed for the proper exercise of the higher grades of command.

"The students shall be selected from among those who have the most creditable record in the garrison schools, but no officer will be selected on his record as a student alone. He must also be conspicuous for attention to and proficiency in his other military duties.

"With a view to making proper selections, infantry and cavalry officers who exhibit the most aptitude and attain the highest proficiency in the course of instruction at the garrison schools will be reported by post commanders to their respective regimental commanders, with a view to their detail at the Infantry and Cavalry School for further instruction. * * * * * From the officers thus recommended the selection shall be made by the Chief of Staff, and the detail shall be announced in orders from

the War Department. Regimental commanders are enjoined to exercise the greatest care in the selection of the officers recommended by them, and to bear in mind that the Infantry and Cavalry School is maintained for the purpose of giving further educational advancement to the most promising officers.

"The object of the school is the instruction of specially selected officers in the higher branches of military art and science not embraced in the garrison school course; to improve its students as to their qualifications as instructors; to offer them exceptional advantages for professional improvement and opportunity for distinction.

"The question as to whether an officer is a graduate of West Point or the contrary should be given no consideration whatever in making selections for this detail. A non-graduate of West Point should not be deprived of the opportunity to graduate from the School of the Line provided he has the mental qualifications necessary to cause his instruction there to benefit the service and has shown himself worthy of the detail by having been conspicuous for attention to duty and efficiency thereon. On no other ground can a West Pointer or anyone else lay claim to the detail. The officers who are not graduates of West Point might be detailed with advantage to the service, but training of 'comparatively uninstructed officers' constitutes no part whatever of the proper function of the School of the Line. Garrison schools have been instituted for this express purpose and the accomplishment of the objects sought in the School of the Line is entirely inconsistent with the pursuit of any such purpose therein.

"A regimental commander must unavoidably be the judge of his own officers; no way is known by which he can avoid the responsibility of selection; in case of doubt as to the ability and qualifications of several candidates for the detail, who are considered about equally worthy, a regimental commander can generally make a safe decision by giving it, (1st) to the one with longest service and (2d) to the one with least detached service.

"As indicated above, the question of whether an officer is a graduate or non-graduate of West Point should be given no consideration whatever. Rank, service and individual qualification should govern. The War Department cannot stamp with special approval any particular rule laid down by a regimental commander for his own guidance, but it should be clearly and distinctly understood by all:

(1). That the function of service schools is to promote especially the best interests of the service, not those of individuals, except as these are incidentally promoted in promoting those of the government;

(2). That they are not maintained to remedy deficient military educational opportunities in the past or to train that class of officers which is thought to most need training;

(3). That garrison schools have been established for these purposes; and

(4). That although affording equal opportunity to all officers may be very desirable, it may be impossible to do so in this connection and at the same time adhere to the purpose for which service schools for the mobile army were established, namely to promote the best interests of the service by affording to the most promising officers therein opportunity for instruction in the higher duties of their profession.

"That it would be more equitable to afford equal opportunity to all officers of equal worth and ability may be acknowledged, but under present conditions this may not be possible, and until conditions so change as to make it practicable, selection must be made by regimental commanders in accordance with principles laid down for their guidance by proper authority. * * * * *"

The officers finally selected to attend The Army School of the Line are announced in orders from the War Department.

RULES GOVERNING ATTENDANCE AND EXAMINATION OF MILITIA OFFICERS FOR ADMISSION.

The following regulations governing the attendance of militia officers as students at The Army School of the Line,* are announced at the direction of the President.

1. A militia officer in order to be eligible for the course of instruction at the school must be not less than 21 nor more than 35 years of age and not above the grade of colonel. He must be of sound health, of good moral character, and a citizen of the United States. He must have been a member of the Organized Militia at least three years and must have such preliminary educational qualifications as will enable him to participate profitably in the course of instruction. No married militia officer will be admitted to the school without the special authority of the Secretary of War.

2. Militia officers desiring to attend the school must be nominated to the Secretary of War by the governors of their respective States or Territories or by the commanding general of the Militia of the District of Columbia not later than January 1 of each year, and in each case the nomination must be accompanied by an affidavit of the nominee stating whether he is married or single, his age, citizenship, and length of service in the Organized Militia, and agreeing, in case the course is once entered upon, to attend and pursue the course of study at the school and be bound by and conform to the rules and discipline imposed by its regulations; a certificate of a medical officer of the Organized Militia, or of any other physician in good standing, showing the physical condition of the nominee; and a certificate from the commanding officer of his regiment or other satisfactory person as to his good moral character and preliminary educational qualifications.

3. Militia officers who have complied with the foregoing regulations and who may be selected by the Secretary of War as candidates will be authorized to report at posts nearest their homes on the second Tuesday in July for preliminary examination. The physical examination will first be conducted. If a candidate be found physically deficient, a report in the case will be made at once to The Adjutant General of the Army by telegraph, and no further examination will be conducted without special authority from the Secretary of War.

4. If the physical examination be satisfactory, the candidate will then be examined in the following general educational subjects:

(a) Writing.
(b) Orthography.
(c) Grammar.
(d) Arithmetic (Wentworth's or its equivalent).
(e) Geography (with special reference to the United States).
(f) History of the United States (Barnes' or its equivalent).
(g) Algebra, to quadratic equations (Wentworth's or its equivalent).
(h) Plane geometry (Wentworth's or its equivalent).
(i) Plane trigonometry (Wentworth's or its equivalent).

In lieu of this examination a graduating diploma from a high school or other educational institution of recognized standing whose curriculum embraces the subjects in question will be accepted.

5. The candidate will then be examined in the following military subjects, the textbooks being indicated:

(a) Administration: Army Regulations. * * *
(b) Manual of Guard Duty.
(c) Drill Regulations (of the arm).
(d) Small-Arms Firing Manual.
(e) Field Service Regulations.
(f) Military Law:
Military Law, Davis.
Manual for Courts Martial.

*Sec. 16 of Act of Congress approved Jan. 21, 1903.

(g) International law:
International Law, Davis (omitting Chapters V, VI, VII, VIII XI, XV, and appendices).
(h) Hippology:
Horses, Saddles, and Bridles, Carter (1906).
(i) Military hygiene:
The Elements of Military Hygiene, Ashburn.

In lieu of examinations in any of the foregoing subjects certificates of proficiency from garrison schools in such subjects will be accepted.

6. The examination will be written, will take place in the presence of a designated officer, and the questions will be prepared by the staff of the Army Service Schools. At the close of the examination candidates will return to their homes. The examination papers will be forwarded to the commandant, who, after having them marked by a board consisting of three officers, will report to The Adjutant General of the Army the names of those who have passed successfully. From the names thus submitted the selection of militia student officers will be made by the Secretary of War. The examination papers in each case will be filed with the records of the Army Service Schools.

7. The expense to the Government on account of militia officers attending the school is limited strictly to travel allowances, commutation of quarters, heat, light and subsistence. The travel allowances consist of the mileage or transportation allowed by law. Commutation of quarters will be the same as provided by law for officers of corresponding grades in the Army. Militia officers cannot be furnished with quarters in kind. The allowances for subsistence will be at the rate of $1 per day. Militia officers are entitled to commutation of quarters and subsistence only while they are actually in attendance at the school and pursuing a course of study. They are not entitled to any allowances while absent on either ordinary or sick leave.

8. The method of granting sick and ordinary leaves of absence to militia officers will be the same as that prescribed in Army Regulations, for officers of the regular establishment. Sick leaves will be limited to 30 days and ordinary leaves to 10 days within any one school term for militia officers.

9. Each militia officer must provide himself, at his own expense, with the proper uniforms of his State, Territory, or District and with the required textbooks. The course will require the entire time of the student, so that no outside occupation during the school term will be practicable.

10. The course of instruction for militia officers will be the same as that for officers of the Army, and they will, upon graduation, be classified in the same manner. They will receive certificates of proficiency in such subjects as have been satisfactorily completed by them, and will be eligible, if their class standing is sufficiently high, for selection as students at The Army Signal School or The Army Staff College. Militia graduates of The Army School of the Line or The Army Field Engineer School, recommended for The Army Staff College or The Army Signal School for the following year, will be authorized, by direction of the Secretary of War, to proceed to their homes. If subsequently detailed by the War Department to take the course for which recommended, they will be authorized to proceed to Fort Leavenworth at the proper time.

11. Militia officers will be subject to the rules governing examinations and proficiency prescribed in paragraphs 15 to 20, inclusive. Any militia officer showing neglect of his studies or a disregard of orders will, upon the recommendation of the academic board, approved by the commandant, be deprived of the privilege of further attendance at the school.

12. When a militia officer is graduated at the school the fact of his graduation will be reported by the commandant to the governor of his State or Territory or to the commanding general of the militia of the District of Columbia, who will also be notified in regard to the positions in the militia for which the officer is considered qualified.

13. The names of militia graduates will also be reported to The Adjutant General of the Army, and will be entered in the register in the Adjutant General's Office, in accordance with section 23 of the act of Congress approved January 21, 1903, as being well, or especially well, qualified for

such commands or duty as may be recommended by the academic board, approved by the commandant.

COURSE OF STUDY.

14. The course of study is embraced in three departments, as follows:

I. *The department of military art.*
II. *The department of military engineering.*
III. *The department of military law.*

I. *Military Art.*

The course comprises the following subjects or fields of inquiry:

(a) *Troops in campaign.*—Organization, field orders, marches, camps, supply, and the care of troops in the field. Instruction in sanitation and the care of troops to be given by The Army Field Service and Correspondence School for Medical Officers.

Instruction by conferences, lectures, and practical problems.

(b) *Tactics.*—Of the single arm and of the arms combined.

Instruction by conferences, lectures, demonstrations, and practical work in map problems, terrain exercises, tactical rides, and maneuvers on the map and in the field.

(c) *Weapons and munitions of war.*—Instruction by conferences, lectures, and practical demonstrations relating to modern military weapons and munitions and their employment in war.

(d) *Military history.*—Instruction by conferences and lectures.

(e) *Hippology and equitation.*—Instruction by lectures, discussions, and practical demonstrations.

Practical instruction in equitation (not considered in determining class standing).

(f) *Lectures and discussions an questions of current military interest* (not considered in determining class standing).

(g) *Conduct of war.*—Instruction by conferences and practical problems.

II. *Military Engineering.*

Instruction in military engineering is given by The Army Field Engineer School. The course comprises theoretical and practical work in the following subjects:

(a) *Military topography, map reading.*—The principles and practice involved in the use of all classes of maps for military purposes.

Instruction by conferences and practical examinations, and by studies of terrain, assisted by the staff class.

(b) *Military topography, surveying.*—The principles and practice involved in the making of topographical surveys, with special reference to subsequent instruction in sketching.

Instruction by conferences, field practice under the staff class as instructors, and field problems.

(c) *Military topography, sketching.*—The principles and practice involved in the rapid making of individual road, outpost, position, and place sketches, and their combination and reproduction.

Instruction by lectures, conferences, field practice under the staff class as instructors, and field problems.

(d) *Field engineering.*—The making and handling of engineering devices to facilitate or hinder the operations of troops in the field.

Instruction by conferences, lectures, and demonstrations.

(e) *Field fortification.*—The theory and application of the principles of field fortification with special reference to its relation to tactics.

Instruction by conferences, lectures, and the solution and discussion of field and map problems involving the location and preparation of defensive positions.

III. *Military Law.*

The course comprises the following subjects. Instruction is given by conferences, lectures, and study of cases:

(a) *Elements of law.*—Law in general and the relation of military and martial law thereto.

(b) *Criminal law.*—With special reference to military tribunals.

(c) *Law of evidence.*—With special reference to military tribunals.

(d) *Practical exercises.*—Applying the principles of law to the procedure of military tribunals and to military administration generally.

EXAMINATIONS.

15. Proficiency and class standing of student officers will be determined only by thorough examination in theoretical work and tests in practical work. To be declared proficient in any subject of the course of study, a student officer must obtain not less than 75 per centum of the maximum value assigned to that subject. If the subject is divided into theoretical and practical parts, he must obtain not less than 75 per centum in each, and if the practical part consists of two or more distinct classes of work, he must obtain not less than 75 per centum in each class.

16. The division of a subject of the course of study into theoretical and practical parts, and of the latter into distinct classes, will be regulated by the academic board with the approval of the commandant.

17. In the *theoretical part* of a subject the final examination will be held as soon as practicable after the completion of that part. Any student officer absent from such examination on account of sickness or other cause will be examined as soon as practicable after his return to duty, the examination being similar to, but not identical with, the one from which he was absent.

18. In the *practical part* of a subject the test will consist of a series of exercises or problems sufficient in number and scope to determine the degree of proficiency of student officers in that part; any student officer not completing such series on account of sickness or other causes will be averaged on the marks he has received on that portion of the series completed by him, *provided* he has completed not less than 50 per centum of the work prescribed for the series, and not otherwise; and, *provided further*, if such *practical part* consists of two or more distinct classes of work, that he shall be averaged separately on each class in which he has completed not less than 50 per centum of the work. When a student officer, through no fault of his own, has failed to complete 50 per centum of any series or class of exercises or problems, and is thus prevented from attaining an average as prescribed herein, such exercises or problems will be given him as the academic board may prescribe for the purpose of determining his proficiency and standing.

19. A student officer failing to obtain 75 per centum in an examination in the *theoretical part* of a subject will be reexamined in that part as soon as practicable, but such reexamination will determine only the question of proficiency, his order of merit or standing in the class being determined by the mark made at the original examination. If he fails to obtain 75 per centum in the practical part or any class of the practical part of a subject, he will not be entitled to a reexamination therein, and will be declared deficient.

20. If a student officer is found deficient upon reexamination in the *theoretical part* of a subject, or makes less than 75 per centum in any class of the practical part, he will be reported as deficient to the War Department, with a statement as to the cause of failure as determined by the academic board, with a view to his being relieved from duty at the school: *Provided*, That if the commandant and academic board are satisfied that the said officer has done his utmost to master the subject, he may (in order to afford him opportunity to complete the remainder of the course) be permitted to continue with his class until it is graduated.

Record, Arrangement and Publication.

21. For record at the school and at the War Department the class, upon graduation, will be arranged in order of merit and graded as follows:

(a) Honor graduates: Those graduates from the head of the class down in regular order, and not exceeding five, who receive the recommendation of the academic board, approved by the commandant. They will be borne upon the Army Register as "honor graduates" of The Army School of the Line.

(b) Distinguished graduates: Those (exclusive of honor graduates) who receive the recommendation of the academic board, approved by the commandant, for detail to The Army Staff College.

(c) Graduates: Those who have obtained at least 75 per centum in all the examinations or reexaminations and tests prescribed above. They will be borne upon the Army Register as "graduates" of The Army School of the Line.

22. For publication, the honor graduates may be arranged according to merit in a separate list, but all other graduates will be arranged alphabetically in two lists, one of distinguished graduates and the other of graduates.

THE ARMY STAFF COLLEGE.

This college is known as The Army Staff College. Its object is to train the selected graduates of The Army School of the Line for the more important staff duties with large commands in time of war.

The assistant commandant of The Army Service Schools is also the director of The Army Staff College.

STUDENT OFFICERS.

Selections of student officers are made as follows:

(a) They are detailed annually, by the War Department, from the highest graduates of the latest class of The Army School of the Line who receive the recommendation of the academic board, approved by the commandant, and who desire to take the course. An officer once detailed to The Army Staff College, and through sickness or War Department orders is prevented from completing the course, may be redetailed as a member of a succeeding class, upon the recommendation of the academic board, approved by the commandant.

(b) With the exceptions noted under (c) of this paragraph, no officer of the Army is detailed for instruction in The Army Staff College who has not been graduated at The Army School of the Line with a standing as high as No. 18, exclusive of militia officers, and no militia officer is eligible for admission to the college unless he has been graduated at The Army School of the Line with a percentage as high as that of the regular officer lowest in class standing who has qualified in accordance with the foregoing. No officer is detailed

for instruction in The Army Staff College without the recommendation of the academic board, approved by the commandant.

(c) In addition to the students who become eligible under (a) and (b) of this paragraph, there may be detailed annually by the War Department, upon the recommendation of the academic board, approved by the commandant, not to exceed two graduates of The Army Field Engineer School, who may so desire, to receive instruction in The Army Staff College. To become eligible for such detail graduates of The Army Field Engineer School must attain a percentage in the course in military art as high as the student officer graduating No. 18 in that course of The Army School of the Line.

COURSE OF STUDY.

The course of study is embraced in four departments, as follows:

I. *The department of military art.*
II. *The department of military engineering.*
III. *The department of military law.*
IV. *The department of languages.*

I. MILITARY ART.

The course comprises the following subjects or fields of inquiry:

(a) *Staff duties.*—To include duties of the General Staff, supply, and administration.

Instruction by lectures and conferences and practical problems.

(b) *Tactics.*—Instruction by lectures and conferences.

Map problems and terrain exercises, tactical and staff rides, and maneuvers on the map and ground.

Practice in criticising and umpiring practical exercises in The Army School of the Line and The Army Field Engineer School.

Practical demonstrations of the uses of all means afforded by the Signal Corps for gaining information and furnishing lines of information in the theater of operations, including balloons, wireless and ordinary telegraph, telephones, etc., in conjunction with field exercises.

(c) *Military history.*—Instruction by lectures and conferences and if practicable by an historical ride.

(d) *Strategical and tactical cooperation of the Army and Navy.*—Lectures on modern navies and naval warfare, with special reference to cooperation with an army. These lectures are given, when practicable, by an officer of the United States Navy.

(e) *Care of troops.*—Instruction in the care of troops is given by The Army Field Service and Correspondence School for Medical Officers as called for by the schedule of The Army Staff College, approved by the commandant.

II. MILITARY ENGINEERING.

Instruction in military engineering is given by The Army Field Engineer School. The course comprises practical work in the following subjects:

(a) *Military topography, sketching.*—The making of rapid individual, road, position, outpost, and place sketches; combined road and position sketches; the organization and direction of sketching and surveying parties covering large areas, and the methods of combining the resulting sketches; photographic and mechanical processes for reproduction of maps and drawings; assisting in the instruction of The Army School of the Line in the practical work in military topography.

Instruction by lectures, demonstrations, and field problems:

(b) *Fortification.*—The principles and application of field, provisional, and permanent fortifications and the attack and defense of fortified places.

Instruction by lectures and by field and map problems in the location and preparation of defensive positions and in fortress warfare.

III. MILITARY LAW.

The course comprises the following subjects, instruction to be given by conferences, lectures, study of cases, and original research:

Military government and martial law, the laws of war, and the military in aid of the civil authorities.

IV. LANGUAGES.

The course of instruction in languages is elective for the student officer and comprises instruction in French, German, Spanish, or any other foreign language in which it may be practicable to give instruction. No student officer, however, is permitted to elect one of these languages unless he has a satisfactory knowledge of Spanish, to be determined by the senior instructor, department of languages. The course in each language comprises instruction in reading, writing, and speaking, with a special view to acquiring a conversational knowledge of the language. Instruction is given by conferences, lectures, and conversational practice.

EXAMINATIONS.

There are no examinations in The Army Staff College. Should any student officer neglect his studies or other military duties, he is, upon the recommendation of the academic board, approved by the commandant, and by authority of the Secretary of War, relieved by the commandant from duty at The Army Staff College and sent forthwith to join his regiment or corps.

Graduates of the Army Staff College are exempt from examinations for promotion for a period of six years.

RECORD, ARRANGEMENT AND PUBLICATION.

For record at The Army Staff College and at the War Department, the members of the class, upon satisfactory completion of the course, are designated as graduates. The term "graduate" signifies that the student officer has attained a proficiency in all of his work satisfactory to the academic board.

In all published lists the names of the graduates are arranged in alphabetical order.

THE ARMY SIGNAL SCHOOL.

This school is known as The Army Signal School. Its object is: (1) To prepare officers of the Signal Corps for the better performance of the duties of their profession, to provide instruction in signal duties for such officers of the line as may be designated therefor, and to make research and practical experiments in such subjects as relate to the duties of the Signal Corps. (2) To supplement the instruction given in The Army School of the Line and The Army Staff College along the special technical lines of the Signal Corps as called for by the schedules of the latter schools, having especially in view the relation of the Signal Corps to the whole Army and the function it fulfills in time of war.

A field officer of the Signal Corps is detailed to report to the commandant of The Army Service Schools for duty as director of The Army Signal School.

STUDENT OFFICERS.

Selections of student officers are made as follows:

(a) The Chief Signal Officer of the Army may submit to The Adjutant General of the Army, not later than January 1 of each year, the names of not less than two nor more than five officers holding permanent or detailed appointments in the Signal Corps for instruction in the school.

(b) Also there may be detailed such officers of the rank of captain or first lieutenant from the Army at large as may make application to The Adjutant General of the Army and receive the recommendation of the commandant of The Army Service Schools, or who may, upon completion of the course of instruction in the Army School of the Line and the Army Field Engineer School, be retained at the post, with a view to their detail for instruction in the Army Staff College, provided that the total number of officers thus to be detailed under (a) and (b), exclusive of militia officers, shall not exceed 15; also such signal officers of the Organized Militia as may apply for entrance subject to the provisions of paragraphs 1 to 13, inclusive, excepting paragraph 5 of Rules governing Attendance and Examination of Militia Officers for Admission to the School of the Line.

The officers finally selected to attend The Army Signal School are announced in orders from the War Department at Washington.

EXAMINATION OF MILITIA OFFICERS FOR ADMISSION.

The following is substituted for the examination in military subjects as set forth in paragraph 5 referred to above:

(a) Administration. (Army Regulations.)

(b) Manual of Guard Duty.

(c) Manual for Courts-Martial.

(d) Field Service Regulations (Articles II, III, IV and V).

(e) Provisional Drill Regulations for Signal Corps Troops, 1911. In lieu of examinations in any of the foregoing subjects certificates of proficiency from garrison schools in such subjects are accepted.

COURSE OF STUDY.

The course of study is embraced in three departments, as follows:

I. *The department of signal engineering.*

II. *The department of topography.*

III. *The department of languages.*

I. SIGNAL ENGINEERING.

The study of this subject is divided into two parts, theoretical and practical.

Theoretical instruction is conducted by means of lectures, recitations from the authorized manuals and textbooks, technical con-

ferences, and written problems, and comprises the following subjects or field of inquiry:

(a) Fundamental laws of electricity and principles of electrical engineering.

(b) Electrical signaling.

(c) Visual signaling.

(d) Aeronautics.

(e) Tactical relations of signal troops.

(f) Fire control equipment for artillery.

(g) Telegraph lines and submarine cables.

(h) Gas and oil engines.

(i) Photography.

(j) Codes and ciphers.

Practical instruction consists of laboratory, photographic, and aeronautical work and exercises in the field.

The laboratory course embraces instruction in making fundamental electrical measurements, and in the operation, repair, and maintenance of various instruments and appliances used by the Signal Corps, such as buzzers, telephones, various forms of telegraphs, and wireless apparatus.

In visual signaling instruction is given in the use of flags, heliographs, acetylene lanterns, rockets and bombs, field glasses and telescopes.

The aeronautical course embraces practical instruction as far as possible in packing, unpacking, and assembling balloons and flying machines, the manufacture and transportation of hydrogen gas, inflation of balloons, operation of motors, and ascensions.

Instruction is given in operating gasoline and oil engines.

The practical instruction in photography consists of the taking, developing, and printing from negatives under field conditions.

The field exercises embrace the use of the various instruments and appliances used for military signaling in all its branches and in the solution of field problems. Preparatory to the solution of field problems, lectures are given on divisional tactics, and map problems solved involving the employment of signal troops.

II. TOPOGRAPHY.

The course comprises theoretical and practical work in military topographical sketching as follows:

(a) For student officers, graduates of The Army School of the Line: Supervision of the practical work of the student officers not

graduates of the Army School of the Line; practice in the rapid making of individual road, position, outpost, and place sketches.

Instruction by field problems.

(b) For student officers not graduates of The Army School of the Line: The principles and practice involved in the rapid making of individual road, outpost, and position sketches.

Instruction by conferences, field practice under the graduates of The Army School of the Line, and field problems.

Instruction in topography is given by The Army Field Engineer School.

III. LANGUAGES.

The course in language is subject to the same provisions as the language course in the Army Staff College. It is elective for the student officer and will comprise the study of Spanish, French, German, or such other foreign languages as may be taught in the course of languages in The Army Staff College. Instruction is given by the department of languages of The Army Staff College. No student officer is permitted to elect one of these languages unless he has a satisfactory knowledge of Spanish, to be determined by the senior instructor, department of languages.

THESIS.

Each student officer prepares a thesis on some professional subject approved by the director of The Army Signal School, and submits the same in the required form prior to June 15 of each year.

TECHNICAL CONFERENCES.

There is conducted in connection with The Army Signal School, under the general supervision of the director, a series of technical conferences for the presentation of original papers and for report, criticism, and discussion of papers pertaining to military field signaling or signal engineering procured from current military journals or other available sources.

The student officers and the signal troops connected with The Army Signal School are used to cooperate as far as possible with the department of military art of The Army School of the Line, The Army Field Engineer School, and The Army Staff College in furnishing military lines of information of all kinds required in terrain exercises, maneuvers, and staff or tactical rides, to the end that the student officers of all these institutions may obtain the maximum benefit from the exercises prescribed.

EXAMINATIONS.

Any student officer of The Army Signal School whose progress in any of his studies is not satisfactory to the academic board is examined in them under the provisions of the rules governing examinations and proficiency prescribed in paragraphs 15 to 20, inclusive, governing examinations in The Army School of the Line.

RECORD, ARRANGEMENT AND PUBLICATION.

For record at the school and at the War Department the members of the class, upon the satisfactory completion of the course are designated as graduates. The term "graduate" signifies the student officer has attained a proficiency in all of his studies satisfactory to the academic board or has obtained at least 75 per centum in each of those subjects in which he has been examined or reexamined.

In all published lists the names of the graduates are arranged in alphabetical order.

They are borne upon the Army Register (The annual directory of the Army) as graduates of The Army Signal School.

THE ARMY FIELD ENGINEER SCHOOL.

This school is known as The Army Field Engineer School. Its object is: (1) The instruction of officers of the Corps of Engineers and of engineers of the Organized Militia in their military duties. (2) To furnish such instruction in military engineering as the schedules of the other schools comprising The Army Service Schools may call for.

There is designated a field officer of the Corps of Engineers to report to the commandant of The Army Service Schools at Fort Leavenworth for duty as director of The Army Field Engineer School.

STUDENT OFFICERS.

Selection of student officers is made as follows:

(a) The chief of Engineers will submit to The Adjutant General of the Army, not later than January 1 of each year, the names of not less than 2 nor more than 10 officers of the Corps of Engineers, of grade not below that of captain, for instruction in the school.

(b) There may also be detailed such engineer officers of the Organized Militia as may apply for entrance, subject to the provisions of paragraphs 1 to 13, inclusive, excepting paragraph 5, of the Rules Governing Attendance and Examination of Militia Officers for Admission to the School of the Line.

The officers finally selected to attend The Army Field Engineer School are announced in orders from the War Department.

EXAMINATION OF MILITIA OFFICERS FOR ADMISSION.

The following is substituted for the examination in military subjects as set forth in paragraph 5 referred to above:

(a) Administration.

(b) Manual of Guard Duty.

(c) Manual for Courts-Martial.

(d) Field Service Regulations (Articles II, III, IV, and V).

(e) Manual of Field Engineering, Beach (Chapters I-X, inclusive).

(f) Topographical Surveying and Sketching, Rees (Chapters I, II, III, and XV, omitting analytical solutions).

In lieu of examinations in any of the foregoing subjects certificates of proficiency from garrison schools in such subjects are accepted.

COURSE OF STUDY.

The course of study is embraced in two departments, as follows:

I. *The department of miltary engineering.*

II. *The department of military art.*

I. MILITARY ENGINEERING.

The study of this subject is both theoretical and practical. Theoretical instruction is by lectures, conferences upon assigned lessons, and written examinations. Practical instruction is by problems and terrain exercises.

The course comprises the following subjects and fields of inquiry:

(a) Military map making with especial reference to large areas.

(b) Organization, duties, and equipment of engineer troops.

(c) Field fortification, including mining and demolitions.

(d) Engineering works on lines of communication.

(e) Castrametation.

II. MILITARY ART.

The study of this subject is in all respects identical with the study of the same subject in The Army School of the Line, and is conducted under the direction of the director and instructors of that

school. Student officers of The Army Field Engineer School are graded in the military art course in the same manner as student officers of The Army School of the Line.

THESIS.

Each student officer prepares a thesis on some professional subject approved by the director of The Army Field Engineer School, and submits the same in the required form prior to June 15 of each year.

EXAMINATIONS.

Any student officer whose progress in any of his studies is not satisfactory to the academic board, is examined therein under the provisions of the rules governing examinations and proficiency prescribed in paragraphs 15 to 20, inclusive, of the rules governing examinations in the School of the Line.

RECORD, ARRANGEMENT AND PUBLICATION.

For record at the school and at the War Department the members of the class, upon the satisfactory completion of the course, are designated as graduates. The term "graduate" signifies the student officer has attained a proficiency in all of his studies satisfactory to the academic board, or has obtained at least 75 per centum in each of those subjects in which he has been examined or reexamined.

In all published lists the names of the graduates are arranged in alphabetical order.

They are borne on the Army Register as graduates of The Army Field Engineer School.

THE ARMY FIELD SERVICE AND CORRESPONDENCE SCHOOL FOR MEDICAL OFFICERS.

This school is known as The Army Field Service and Correspondence School for Medical Officers.

It consists of two parts: One, The Field Service School for Medical Officers, at which attendance in person for the pursuance of a graded course of study is required; the other, The Correspondence School, wherein answers and solutions to such questions and problems as may be sent to designated medical officers, at their posts or stations, are required. Its object is:

In The Field Service School:

(a) To instruct officers of the Medical Corps and medical officers of the Organized Militia in their duties as administrative and staff officers on field service, and to make research into such subjects as may concern medical officers under field conditions.

(b) To give such technical instruction to students in the other schools as the schedules of those schools, approved by the commandant, may call for.

In The Correspondence School:

(c) To afford opportunity for such wider elementary instruction in the methods and purposes of military plans and movements as will enable medical officers of the Regular Army better to fulfill their duties in the field, and to prepare them to participate to better advantage as students in actual attendance at The Field Service School for Medical Officers.

There is detailed a field officer of the Medical Corps, to report to the commandant of The Army Schools, for duty as director of The Army Field Service and Correspondence School for Medical Officers.

PERIOD OF INSTRUCTION.

The course of instruction in The Field Service School for Medical Officers covers a period of not less than six weeks between April 1 and May 15 of each year.

STUDENT OFFICERS.

Selection of student officers is made as follows:

(a) The Surgeon General submits to The Adjutant General of the Army not later than January 1 of each year the names of not less than four nor more than eight officers of the medical corps whom he recommends for detail for instruction in this school.

(b) Medical officers of the Organized Militia who may apply for entrance and whose admission may receive the approval of the Secretary of War, not to exceed a total of six in any one session, may also be detailed for instruction in the school, subject to the provisions of paragraphs 2, 7, 9, 10, 11, 12, and 13 of the rules governing the examination and admission of militia officers to the School of the Line.

The officers finally selected to attend The Army Field Service School for Medical Officers are announced in orders from the War Department.

COURSE OF STUDY.

The course of study is conducted under The Field Service School for Medical Officers, The Army Staff College and The Army Field Engineer School. Its details are prepared by the director of The Army Field Service and Correspondence School for Medical Officers, in cooperation with the directors of The Army Staff College and The Army Field Engineer School, subject to the approval of the commandant. In a general way, its scope is as follows:

Under The Field Service School for Medical Officers the course comprises:

(1) General sanitary organization and organization of sanitary detachments, units, and formations; sanitary equipment and supply; the transportation of sick and wounded; weapons, ranges, and positions; tactical use of the sanitary service in war; the sanitary service of the line of communications and the base; hospital trains and ships; the use of the Red Cross and other voluntary aid associations.

Instruction is by lectures, conferences, problems, terrain exercises, tactical rides, and the practical use and direction of field sanitary units.

(2) The civil sanitary function of the Medical Department in occupied territory.

Instruction is by conferences and problems.

Under The Army Staff College:

Organization and administration of troops in the field; orders; the elementary principles of tactics; staff administration and supply.

Instruction is by lectures, demonstrations, tactical and staff rides, and maneuvers on map or terrain.

Under The Army Field Engineer School:

(1) Military topography, map reading: The principles and practice involved in the use of all classes of maps for military purposes.

(2) Military topography, sketching: The principles and practice involved in the rapid making of simple road and position sketches.

Instruction is by lectures, conferences, and field practice.

CERTIFICATES OF PROFICIENCY.

Student medical officers who complete the course satisfactorily receive certificates setting forth that fact.

NEGLECT OF DUTY.

Should any student officer neglect his studies or other military duties, he is upon recommendation of the academic board, approved

by the commandant, and by authority of the Secretary of War, relieved by the commandant from duty at The Army Field Service and Correspondence School for Medical Officers and sent forthwith to join his proper station.

REPORT ON QUALIFICATIONS.

At the end of the course of instruction the director reports upon the qualifications of each student officer for the performance of the administrative duties of the sanitary service in the field.

This report is forwarded by the commandant, with such remarks in the case as he deems proper, to The Adjutant General of the Army for file with the personal record of the officer concerned.

CORRESPONDENCE COURSE.

There are detailed by the War Department, upon recommendation of the Surgeon General, not to exceed 30 officers of the Medical Corps of the Regular Army to take the correspondence course each year.

The questions, problems, etc., forming this course of instruction are prepared by the director of The Army Field Service and Correspondence School for Medical Officers, under the direction of the commandant.

The commandant of The Army Service Schools furnishes copies of the questions to be answered and problems to be solved to each of the officers designated to take the course. For this purpose a list of the officers nominated by the Surgeon General are furnished the commandant prior to the beginning of the course. Copies of the questions and problems are then transmitted by the commandant to each officer, through the commanding general of the division in which he may be serving.

SPECIAL COURSE.

With a view to enlarging the usefulness of The Army Service Schools to the Army, not to exceed 20 officers of the Regular Army are detailed to pursue a special course in tactics between January 1 and April 1 of each year.

To be eligible for this detail officers must be of grade not lower than that of major.

Such officers as are to be detailed for this special course are selected by, and announced in orders from, the War Department at Washington.

The course of instruction is prepared by the director of The Army Staff College and is under his immediate direction. Instruction is given by the various schools and departments of The Army Service Schools in accordance with the schedule for the special course, as approved by the commandant.

Upon completion of the course the commandant makes a special report to be forwarded to The Adjutant General of the Army for file with the records of the officers.

GENERAL REGULATIONS FOR THE GOVERNMENT OF THE ARMY SERVICE SCHOOLS.

POST ADMINISTRATION.

Such of the officers and enlisted force with their equipment on duty in the garrison or at the schools, Fort Leavenworth, Kansas, as are deemed necessary by the commandant, are available for the practical instruction of student officers.

The commandant orders the expenditures of such authorized quantities of ammunition for field guns, machine guns, and small arms as he deems necessary for instruction at The Army Service Schools.

DISCIPLINE.

The schools and college are governed by the rules and discipline prescribed for military posts and by their own special regulations. Matters pertaining to them and to the course of instruction are subject exclusively to control of the War Department, and all communications for officers on duty with the schools are sent through the commandant directly and not through division headquarters.

PERSONNEL AND STAFF.

The personnel of the schools consists of all officers, enlisted men, and civilian employees on duty. The staff consists of all officers not students on duty, other than the commandant and his personal aides.

THE COMMANDANT.

The commandant sees that the work of The Army Service Schools is coordinated and that cordial cooperation is maintained at all times.

He is authorized to convene the academic board for consideration of any matters affecting The Army Service Schools or of a single

school which is a constituent part of The Army Service Schools. At such session the senior officer present presides.

He applies to The Adjutant General of the Army for the detail of officers for duty at the schools and assigns them to duty as assistant commandant, directors, instructors, and secretary, as may be necessary.

On the 31st of August of each year he makes a report upon the schools and college, setting forth their progress and such changes as are deemed desirable to promote further progress and improvement. This report, as also the appended reports of the directors, librarian, and secretary and disbursing officer, embodies the statistical information pertaining to the work of the schools.

He furnishes annually, for the use in the office of the Chief of Staff and of the president of the Army War College, bound volumes containing the record of each student officer of the schools and college.

Upon the completion of the course of instruction at the end of the school year he is authorized, unless limited by special instructions, to grant to the officers and men under his control leaves of absence and furloughs. But during the course of instruction he does not, without authority of the Secretary of War, grant leaves of absence to officers involving absence from duty, except in cases of emergency, and then only for a period not exceeding 10 days at any one time.

He makes application to the War Department for such articles of engineer, ordnance, and signal property as may be necessary.

ACADEMIC BOARD.

The academic board supervises the methods of instruction and work in the several departments and schools, the preparation of annual reports and schedules, assists the commandant in coordinating the courses of instruction and securing uniformity in publications of the schools.

There is but one academic board for The Army Service Schools at Fort Leavenworth. It consists of the commandant, the assistant commandant, the directors of the various schools which constitute The Army Service Schools, and the senior instructors of the department of military art, languages, and law of The Army School of the Line. The secretary of The Army Service Schools is the secretary of the academic board. He is the custodian of the records of the board, but has no vote. A majority of the academic board con-

stitutes a quorum for the transaction of business, but no action or recommendation of the academic board is final until approved by the commandant. All deliberations, discussions, and individual votes are confidential.

CORRESPONDENCE.

All official correspondence relating to the schools from officers on duty therewith are addressed to the secretary.

LIBRARY.

The librarian, under the direction of the commandant, is charged with the administration and interior economy of the library.

He is responsible for the books and other property therein and renders an annual report thereof to the secretary.

There is a library committee for the schools and college, consisting of the secretary, the librarian, and one other officer designated by the commandant from among those belonging to the staff of the schools and college. Subject to the approval of the commandant, this committee is charged with the preparation of regulations for the administration and interior economy of the library and with the selection of books to be purchased.

INSTRUCTORS AND STUDENT OFFICERS.

The directors of the various schools are assisted by such number of senior instructors and instructors assigned to the several departments of those schools by the commandant as may be required.

When practicable instructors are senior in rank to student officers but whether senior or junior, instructors while in the execution of their duty are accorded the respect due to their position.

The personnel of the schools and college is exempt from all ordinary staff duties and garrison routine, from court-martial duty (except in case of necessity), from such drills and ceremonies as are not included in the course of instruction, and, in general, from all duties which would interfere with the performance of their functions in connection with the schools and college.

Details for instruction as student officers are, except where otherwise specified, for one year, from the 15th of August to the 14th of the following August, inclusive, and officers detailed for instruction report in person to the commandant not later than the 15th of August of each year.

FOREIGN STUDENT OFFICERS.

Foreign officers attending the schools or college are supplied with all the facilities and enjoy all the privileges accorded to other student officers, but they are not marked or graded in any way.

INSTRUCTION.

The course of instruction at the schools, except as otherwise provided, is included in one term beginning on the 1st of September (unless that date fall on Saturday or Sunday, in which case the term begins on the following Monday) and ending on the 30th of June following. Staff rides or visits to battlefields for student officers who have just been graduated at The Army Staff College may be conducted between the date of graduation and the 14th of August and during this period, except that part consumed in the staff ride or visit to a battlefield, these officers may be detailed by direction of the Secretary of War for duty at field maneuvers or camps of instruction. Such instructors as may be necessary are detailed to accompany the class on its staff ride or visit to a battlefield.

Exercises in instruction are held daily, except Saturdays, Sundays, holidays, and the period from December 24 to January 1, both inclusive. Saturday forenoons may be used when necessary to maintain the regular yearly schedule in the different departments.

All instruction is strictly in conformity with principles laid down and customs observed in official publications of the War Department and authorized textbooks.

To facilitate practice of topographical reconnaissance and the conduct of field exercises on unfamiliar ground, the commandant may, in his discretion, by use of facilities at hand and available at military posts, take the personnel of the schools and college into temporary camps.

The allotment of time for instruction in each department of the schools and college, and for equitation and physical exercise during the winter months and in inclement weather; the assignment of values to the different subjects in the course of instruction, and the methods of conducting and marking practical work and examinations, subject to the limitations of the foregoing paragraphs, is regulated by the academic board with the approval of the commandant, and is published by the latter for the information of all concerned; but no material changes in the total amount of time allotted any department, or in the courses of instruction, or in the character of practical work, or in the methods of instruction and marking in practical work

and examinations are made without the approval of the Secretary of War.

GRADUATION.

A student officer who passes successfully through the entire course of instruction in The Army School of the Line, The Army Signal School, The Army Field Engineer School, or The Army Staff College receives a diploma setting forth his proficiency, and also a certificate of proficiency covering all subjects completed by him during the course, and his name is borne thereafter upon the Army Register (The Army annual directory of officers), as a graduate thereof. Diplomas are signed by the commandant and by the academic board. Officers who have been unable to complete the entire course receive certificates of proficiency in such subjects as they have completed satisfactorily.

At the end of the term the academic board reports upon the qualifications of each student officer for The Army School of the Line, The Army Staff College, The Army Signal School, and The Army Field Engineer School, and states the professional employments for which he appears to be well or especially well qualified. These reports, together with a report of the marks and standing of each student officer in The Army School of the Line are forwarded by the commandant with such remarks in the case of each student officer as he deems proper to The Adjutant General of the Army for file with the personal record of the officer concerned. The commandant also sends a copy of each student officer's school record to his regimental commander, or, in the case of a staff officer, to the chief of his corps or department.

MISCELLANEOUS.

Upon graduation of the classes the commandant makes a special report to The Adjutant General of the Army showing how each graduate should be borne upon the register.

After the standing of the student officers in The Army School of the Line and The Army Field Engineer School has been determined, the academic board convenes to recommend officers for detail for instruction in The Army Staff College for the following year. These recommendations are forwarded by the commandant, with his own action thereon, to The Adjutant General of the Army. Entrance to The Army Staff College from The Army School of the Line and The Army Field Engineer School is accorded student officers in order

of their graduation as far down the class (arranged according to merit) as they are recommended by the academic board, approved by the commandant, subject to the restrictions named in paragraph on "student officers" under the head of The Army Staff College. Said recommendation and approval, however, are not withheld from any officer and given to one below him in order of graduation, except on account of moral deficiencies or defects in habits or disposition sufficiently serious to render him markedly unsuitable for staff service. Whenever the recommendation of the academic board or the approval of the commandant is thus withheld, the reason for such action is stated clearly in each case giving details of such misconduct or defects as are relied upon to justify the withholding of the recommendation or approval.

Any graduate of The Army School of the Line, with the approved recommendation of the academic board, may take the course in The Army Signal School. Applications from officers of The Army School of the Line to take the course in The Army Signal School are submitted to the commandant not later than May 1, each year.

Upon completion of the course of instruction in The Army School of the Line and The Army Field Engineer School the commandant may retain at the post, with a view to their detail for instruction in The Army Staff College and The Army Signal School, such officers as may have received corresponding recommendations by the academic board approved by the commandant, awaiting the issue of orders by the War Department in their cases.

Unless otherwise instructed the commandant upon the completion of the courses of instruction, relieves all student officers of the Regular Army (except those designated for instruction in The Army Staff College and The Army Signal School for the following year) from duty at Fort Leavenworth, and orders, by authority of the Secretary of War, those whose stations are in the United States or Alaska to join their proper stations, and those whose stations are in the Philippine Islands or Hawaii to arrange for transportation with the Quartermaster General and report at San Francisco, California, in time to take the first Army transport which sails thereafter. All student officers of the Organized Militia are relieved and authorized, by order of the Secretary of War, to proceed to their respective homes.

The commandant may also, at their own request or upon expiration of detail, relieve from duty members of the staff of the schools

and college and issue the necessary orders in each case as authorized above.

Upon the recommendation of the academic board the commandant may, with the approval of the Secretary of War, retain graduates of The Army Staff College on duty at the schools and college and assign them to duties specified, such as instructors, secretary, etc., but no graduate of The Army Staff College is so retained on such duty for a longer period than two years without the special authority of the Secretary of War in each case. Under the same conditions and limitations graduates of The Army Signal School and The Army Field Engineer School may be retained for assignment to duty therein.

CHAPTER VIII.

THE COAST ARTILLERY SCHOOL.
(Fort Monroe, Va.).

"The fact is that a vague attachment to the whole human race is a poor substitute for the performance of the duties of a citizen; and professions of universal philanthropy afford no excuse for neglecting the interests of one's own country."—*Joseph Chamberlain.*

The Coast Artillery School is located at Fort Monroe, Virginia. It is the oldest of all Army Service Schools, having been founded in 1824, and was originally known as the "Artillery Corps for Instruction." A brief historical sketch of this institution is contained in Chapter I.

The object of the school is to enlarge the field of instruction of the garrison schools for coast artillery officers by advanced courses of study of practical training in the technical duties of their profession; to amplify the military education of specially selected officers in order to prepare them for the more important positions in the coast artillery, and to fit them for the course at the Army War College; and to educate and train specially selected enlisted men for the higher grades in the coast artillery noncommissioned staff.

ORGANIZATION.

The personnel of the Coast Artillery School consists of a commandant, a secretary, a librarian, three directors of departments, and such instructors, student officers, and enlisted men and troops as may be assigned to it for duty or instruction by orders from the War Department.

THE COMMANDANT.

The general administration of the school is entrusted to the commandant, who is especially selected for duty and detailed in orders from the War Department. The commandant of the school also commands the Artillery District of Chesapeake Bay and the post of Fort Monroe; in his absence the senior coast artillery officer on duty at Fort Monroe performs his duties. Such of the officers and so much of the enlisted force with the equipment of the several organizations on duty at the post as may be deemed necessary by the commandant are available for the practical instruction of student officers.

The commandant makes application to The Adjutant General of the Army for such articles of supplies as may be required for the

COAST ARTILLERY SCHOOL, FORT MONROE, VA.

school, and submits to him annually on the first day of September a report setting forth the progress and needs of the school and such changes as are deemed desirable to promote further progress and improvement.

The commandant directs the expenditure of such quantities of material as may be authorized and necessary for the purposes of instruction.

The funds appropriated for the support of the school and for the purchase of school property is disbursed on vouchers approved by the commandant.

The commandant is authorized, in the absence of special instructions, to grant to the officers and men under his control leaves of absence and furloughs not to exceed one month in duration upon the completion of the course of instruction at the end of each school year. During the course of instruction the commandant does not grant leaves of absence to officers involving absence from duty without the authority of the Secretary of War, except in cases of emergency, and then only for a period not exceeding ten days.

Copies of all orders issued by the commandant, changing the official status of officers, are furnished to the Adjutant General of the Army, to all headquarters, commanding officers, and others interested in or affected by such changes.

THE SECRETARY.

The secretary of the school is custodian of the records, books, and property of the school, disbursing officer of the school funds, recorder of the school board, and is in command of the Coast Artillery School Detachment. He promulgates the orders of the commandant. All official correspondence relating to the school from members thereof are addressed to the secretary.

THE LIBRARIAN.

The school library is maintained separately and apart from the post library at Fort Monroe. There is a library committee for the school, consisting of the school board and the librarian. Subject to the approval of the commandant, this committee is charged with the preparation of regulations for the administrative and interior economy of the library and with the selection of books to be purchased. In case of loss or damage to any book, periodical, map, or other property belonging to the school the person responsible for such loss or damage reimburses the United States by the payment of the actual value of the

article or the cost of repairs. The amount to be paid is assessed by the librarian, and his action, when approved by the commandant, is final. The librarian is a member of the school board during deliberations on publications that are under the supervision of the school board.

DIRECTORS, INSTRUCTORS, AND STUDENT OFFICERS.

The directors of departments, instructors, and student officers are exempt from all ordinary staff duties, garrison routine, court-martial duty (except in case of necessity), such drills and ceremonies as are not included in the course of instruction, and, in general, from all duties that would interfere with the performance of their school duties. Enlisted men assigned for special instruction are excused from routine garrison duty.

When practicable, instructors are senior in rank to student officers, but, whether senior or junior, instructors while in the execution of their duty are accorded the respect due to their position.

THE SCHOOL BOARD.

A school board to consist of the commandant and the directors of departments arranges the courses of instruction as to subjects, methods, and allotment of time; prescribes the character and scope of the final examinations; supervises the publication of the Journal of the United States Artillery and of Artillery Notes; investigates and reports upon such technical artillery subjects as may be referred to it by the War Department, and determines finally all questions of proficiency of students. No action of the board that changes the regulations or courses of instruction is final until approved by the Secretary of War. The board meets at such times as the commandant may direct. The deliberations of the board are confidential and its decisions, until duly published are also confidential.

The number of instructors and student officers varies slightly, but of the former there are usually ten, not counting the commandant and executive staff. Ten officers usually make up the class in the advanced course, thirty in the regular course, and about sixty in the enlisted men's division.

COURSES OF INSTRUCTION.

OFFICERS' DIVISION.

1. *Department of Artillery and Land Defense.*

(a). Regular Course.

(b). Advanced Course.

2. *Department of Engineering and Mine Defense.*
(a). Regular Course.
(b). Advanced Course.

ENLISTED MEN'S DIVISION.

1. *Department of Enlisted Specialists.*
(a). Electrical Course.
(b). Mechanical Course.
(c). Artillery Course.

The regular course for officers is completed in one school year and includes the instruction in both departments of the Officers' Division. The advanced course is also completed in one school year and includes instruction in both departments. In addition to the foregoing, special courses in ballistics and explosives are arranged, for either of which officers may be detailed for a period of not more than one year. Each of the courses for enlisted men are completed in one year.

OFFICERS' DIVISION.

STUDENT OFFICERS.

In the regular course the student officers consist of such officers from the Coast Artillery Corps as may be designated in orders from the War Department to take the course.

At the close of the school year the school board recommends to The Adjutant General of the Army for the advanced course those officers in the regular course who have qualified for the advanced course. When practicable, the officers so recommended, and such additional officers as may be recommended by the Chief of Coast Artillery, are detailed to take the advanced course.

ATTENDANCE OF MILITIA OFFICERS.

Officers of militia coast artillery organizations may attend the school under regulations identical with those providing for attendance of militia officers at the Service School at Fort Leavenworth, Kansas (See Chapter VII), except that they are not required to undergo an examination in hippology.

DETAILS OF COURSES OF STUDY.

The regular and advanced courses for officers embraced by the two departments are as follows:

I. Department of Artillery and Land Defense.
- Regular course
  1. Coast artillery matériel.
  2. Gunnery.
  3. Artillery defense.
  4. Land defense.
  5. Explosives.
- Advanced course
  1. Artillery defense, advanced.
  2. Land defense advanced.
  3. Explosives advanced.

II. Department of Engineering and Mine Defense.
- Regular course
  1. Electrical Engineering.
  2. Mechanical and steam engineering.
  3. Submarine mining.
- Advanced course
  1. Electrical Engineering advanced.
  2. Mechanical and steam engineering, advanced.

The object of the advanced and special courses is to amplify for specially selected officers the instruction and work of the regular course, with a view to improving their qualifications as instructors, preparing them for duty at the Army War College (Chapter VI), and fitting them for the duties of the general staff of the Army.

The courses of instruction comprise practical exercises, problems, research, conferences, and lectures.

In the regular course partial examinations are held from time to time; these, with the practical exercises and problems, determine a student's standing and whether or not he shall take a final examination.

In the advanced course the same general method of instruction is followed, but there are no examinations. If any student officer in the advanced course neglects his duties the director of the department reports such officer to the commandant; his case is considered by the school board, and, should the board so recommend, his name is forwarded to The Adjutant General of the Army, and he is relieved from duty at the school by authority of the Secretary of War.

Books used in the departments are for reference and courses of reading.

During courses, as a part of them and in connection with the subject in hand, approved lectures are delivered from time to time by Army and Navy officers and civilians, and approved visits for purposes of study are made by student officers to fields of campaign and positions of battle, to warships in course of construction and in commission, to powder and gun cotton factories, to electrical and cable works, and to power plants.

The outline of the courses of study for officers is as follows:

I. DEPARTMENT OF ARTILLERY AND LAND DEFENSE.

REGULAR COURSE.

1. Coast artillery matériel.—Guns; Mortars; Carriages; Emplacements; Ammunition; Fire Control Apparatus.

2. Gunnery.—Principles and Applications of Ballistics; Seacoast Engineering as Applied to Artillery Defense; Subcaliber Practice; Battery Service Practice; Battle Command Service Practice.

3. Artillery defense.—Forms of Naval Attack; Warships; Places to be defended; Nature, Extent, and Disposition of Armament; Organization; Battle Tactics.

4. Land defense.—Minor Tactics as applied to the attack and defense of coast forts; Organization; Topography and Sketching; Fortifications; Field Engineering; Shelter and Sanitation.

5. Explosives.—Practical laboratory work and problems involving fundamental chemical principles. Examination, tests, and use of oils. Examination, study, and tests of explosives. Demolitions. Explosives for submarine mines.

ADVANCED COURSE.

1. Artillery defense, advanced.—Fortification; Organization; Battle Tactics; Service of Security and Information; Cooperation of Army and Navy; Military History.

2. Land defense, advanced.—Minor Tactics; Organization; Supply; Shelter; Sanitation; Field Fortification; Field Engineering; Plans for National Defense; Duties of the General Staff.

3. Explosives, advanced.—Practical laboratory work and problems. Calorific value of fuel. Analysis of chimney gas. Experimental firing to illustrate effect on detonation of varying physical surroundings. Manufacture of and specifications for explosives.

SPECIAL COURSE IN BALLISTICS.

Exterior ballistics.—The principal and secondary problems. Accuracy and the theory of errors. The calculation of constants, including the coefficient of form and the drift constant. Classification of trajectories. Deduction of empirical formulas. Practical work in setting up, adjusting, and using ballistic machines. Interior ballastics. Relation of maximum pressure to charges. Mode of combustion of powder and its relation to pressures. Characteristics of a powder. Variations. Recoil.

II. DEPARTMENT OF ENGINEERING AND MINE DEFENSE.

REGULAR COURSE.

1. Electrical Engineering.—Theory of electricity and magnetism. Batteries, primary and secondary. Electrical instruments and measurements. Switchboards and power distribution. Testing cables and installations. Fire-control apparatus, care and operation. Installation and maintenance of submarine fire-control cables, and the maintenance and the making of ordinary repairs of electrical equipment in seacoast fortifications. Searchlight operation. Direct-current generators and motors, principles, operations, simple tests.

2. Mechanical and steam engineering.—Shafting, belting, lubricants. Boilers and accessories, care and operation. Steam engines, care and operation. Oil and gasoline engines, care and operation.

3. Submarine mining.—Mine apparatus. Loading, planting, operating, and maintaining mines.

Regarding the course Colonel F. S. Strong, Coast Artillery Corps, referring to time devoted to this subject, in his annual report as Commandant in 1912, says:

"It will be noted that in the regular course considerably more time was devoted to submarine mining than had formerly been the case. This instruction was of the most practical character and it is believed that the extra time allotted to this work will be of the greatest value to the graduates, who, with few exceptions, are fully equipped for the duties of mine company commanders. The work in explosives in both courses was materially modified and limited to practical instruction which is necessary to equip company officers for their duties in caring for, testing and handling service explosives. More detailed and technical work in this subject is reserved for special students." * * * * *

ADVANCED COURSE.

1. Electrical engineering, advanced.—Fire control apparatus and searchlights, experimentation, operation, and plans for installation. Direct-current system of power distribution; complete tests of machinery; plans for installation. Alternating currents; fundamental problems; instruments and measurements. Alternating system of current

distribution; complete tests of apparatus; plans for installation. Wireless telegraphy and telephony.

2. Mechanical and steam engineering, advanced.—Thermodynamics of the steam engine. Boilers and accessories, complete test. Steam engines, complete test. Internal combustion engines, complete test. Power plant installation. Economics of power plant operation.

SPECIAL COURSE IN EXPLOSIVES.

Tinning and galvanizing wire used in cable manufacture. Analysis of oils. Analysis of rubber compounds. Gas analysis. Special investigations on explosives.

EXAMINATIONS.

Examinations will be held as soon as practicable after the close of instruction in each subject under such rules as the school board may prescribe, and the practical exercises and problems must be identical for all student officers taking the examinations.

In case a student officer can not be examined at the regular time, owing to sickness or other cause, he will be examined as soon as practicable after return to duty. For this deferred examination the practical exercises and problems are similar to those given at the regular examination.

The attainment of 75 percentum of the maximum is considered a satisfactory examination.

An officer declared deficient in any subject may apply at once in writing, for a re-examination, and such re-examination, if authorized by the school board, is held with as little delay as practicable.

Officers unable to complete the entire course are furnished with certificates of proficiency, signed by the commandant, in those subjects successfully completed.

GRADUATION.

An officer who passes successfully through the entire course of instruction in either the regular course or the advanced course is furnished with a diploma setting forth his proficiency.

For record at the school and at the War Department the class in the regular course is arranged as follows:

(a). Honor graduates: Those recommended by the school board from the head of the class down in regular order and not exceeding five. They are designated in the Army Register as "honor graduates, Coast Artillery School, 191—."

(b). Distinguished graduates: Those who, in addition to the honor graduates, are recommended as qualified to take the advanced course. They are designated in the Army Register as "graduates, Coast Artillery School, 191—."

(c). Graduates: Those who, in addition to the honor graduates and distinguished graduates, have successfully completed the course. They are designated in the Army Register as "graduates, Coast Artillery School, 191—."

For publication, the names of honor graduates, distinguished graduates, and graduates are arranged alphabetically upon three separate lists.

For record at the school and at the War Department the class in the advanced course upon graduation are designated as follows:

Graduates: Those who have successfully completed the advanced course. They are designated in the Army Register as "graduates, advanced course, Coast Artillery School, 191—."

For publication, the names of all graduates of the advanced course are arranged alphabetically upon one list.

Officers graduated from the Coast Artillery School subsequently to August 15, 1906, are exempt from professional examinations for promotion to the grade next above that held by them at graduation in all subjects covered by their diplomas for the following periods:

1. Regular course—
   (a). Honor graduates, five years.
   (b). Distinguished graduates, four years.
   (c). Graduates, three years.
2. Advanced course graduates, six years.

The commandant forwards to the Adjutant General of the Army at the close of each school year a report of the standing of members of the officers' classes.

ENLISTED MEN'S DIVISION.

In the annual report of the operation of the Coast Artillery School for 1912, the following comment is made with reference to the work in this division:

"The instruction given in the Enlisted Men's Division is of the utmost value, not only to the individuals receiving its benefits, but also to the Coast Artillery Corps and the service at large. It is confidently believed that no investment of equal amount made by the Government produces greater returns financially and otherwise than the appropriation of $7,000 allotted to the Enlisted Men's Division, Coast Artillery School."

The outlines for the courses for enlisted men embraced in the department of enlisted specialists are as follows:

PHYSICS LABORATORY, COAST ARTILLERY SCHOOL, FORT MONROE, VA.
(DEPARTMENT OF ENLISTED SPECIALISTS).

1. Electrical course.—Fundamental principles of electrical knowledge and their application. Use of electrical measuring instruments and devices. Generators and motors, alternating current and direct current. Cable testing and general line work. Telephones and storage batteries. Searchlights. Interior and exterior wiring, cable splicing, repair work. Construction, operation, and upkeep of fire-control system, and the making of ordinary repairs to electrical equipment in seacoast fortifications. Wireless telegraphy and telephony. Machine shop practice and principles of power plant operation.

2. Mechanical course.—Machine shop practice including machines and tools in general work shop. Fuels and combustion. Construction, care, and operation of boilers and accessories, and boiler room management. Steam and internal combustion engines; care, operation, and management. Principles of power plant engineering, including test of boilers, engines, and auxiliaries. Operative tests of power plants. Elementary principles of, and practical care and operation of, generators, motors, and switchboards.

The following War Department order dated Washington, D. C., February 23, 1914, discontinues this course and provides for a more extensive substitute:

I. 1. The mechanical course of the Enlisted Men's Division of the Coast Artillery School at Fort Monroe, Va., is hereby discontinued upon the graduation of the present class of the enlisted men now pursuing that course, and General Orders, No. 143, War Department, 1910, as amended, is further amended accordingly.

2. A course for the instruction of firemen, Coast Artillery Corps, is general supervision of the coast defense commander and will be conducted by the War Department.

This course will begin on the first day of May of each year, unless that date falls upon Saturday or Sunday, in which case it will begin on the following Monday and continue for six months. It will be under the general supervision of the coast defense commander and will be conducted by the coast defense artillery engineer, assisted by such enlisted specialists as may be designated by the coast defense commander.

3. The course will be as follows:

First and second months.—Different methods of firing and cleaning fires, the proper use of firing tools; records required; different types of boilers, furnaces and grates; fuels, feed-water, combustion, and draft; repair and cleaning of boilers; repair of furnaces and grates; effect of scale, grease, and soot, and methods of preventing and removing same.

Third and fourth months.—A study of the different types, necessity for and the practical operation and adjustment of the following: Stop valves, safety valves, injectors, feed pumps, feed-water heaters, condensers, steam traps, steam separators, oil separators, grease extractors, lubricators, the use of the thermometer, draft gauge, automatic damper regulator, combustion (CO_2) recorder, steam gauge, and water column.

Fifth month.—Repair work, to include packing of condenser tubes, valve stems, and piston rods, grinding valves, putting in new gaskets, caulking leaks, method of putting a new tube in a boiler, stopping leaks at ends of boiler tubes, repairing air leaks in boiler setting.

Sixth month.—Practical operation of steam engine, condenser, generator, and switchboard; elementary electricity, to include magnetism, batteries, Ohm's law, dynamos, measuring instruments and switchboard appliances.

4. The following textbooks are prescribed and may be obtained from the library, Coast Artillery School, upon application to the commandant:

"Steam Boilers," Shealey; McGraw-Hill Book Co.
"Steam Boilers," Hawkins.
"Power Catechism," McGraw-Hill Book Co.
"The Fireman's Guide," Dahlstrom; Spon & Chamberlain.
"Lessons in Practical Electricity," Swoope.

Catalogues should also be obtained by the coast defense artillery engineer from the manufacturers of the apparatus installed in the power plants of the coast defenses in which he is stationed.

5. Upon the conclusion of the course, oral and practical examinations will be held as soon as practicable. They will be conducted by the coast defense artillery engineer, under the direction of the coast defense commander, at such places as the matériel or equipment pertaining to the subject in hand is located; and in determining the qualifications of candidates, credit will be given for practical knowledge of subjects rather than for textbook answers to questions. The attainment of 75 per centum of the maximum will be considered a satisfactory examination. The examination questions will be prepared by the Coast Artillery School Board and sent direct to the coast defense commanders concerned, due allowance being made for the matériel and equipment of the coast defenses in which the course is being conducted.

6. Upon completion of the examination, the papers, properly marked, will at once be forwarded to The Adjutant General of the Army.

7. Those candidates whose examinations are satisfactory will be furnished with certificates of proficiency and be eligible for appointment as firemen, Coast Artillery Corps.

8. In order to be eligible for this course of instruction, an enlisted candidate must have had at least one year's continuous service in the Coast Artillery Corps or the Coast Artillery School Detachment immediately preceding the beginning of the course.

9. Candidates will make application to The Adjutant General of the Army, through military channels, those stationed in the United States not later than January 1 and those stationed in the insular possessions sufficiently early to reach The Adjutant General of the Army not later than December 1 of each year. These applications will be indorsed by the candidate's company, fort, and coast defense commanders and will state his aptitude, character, and desirability.

10. Before being designated to take the course, a candidate who complies with the conditions stated above will be examined in writing, under the direction of his commanding officer in the presence of a commissioned officer, in the elements of arithmetic, to include addition, subtraction, multiplication, long division, and decimals.

11. The questions for this examination will be prepared by the Coast Artillery School Board and will be sent to the coast defense commanders concerned. The examination will be held in the United States on March 1 and in the insular possessions on February 1 of each year. Upon the completion of the examination the papers will be marked by the officer supervising the examination and will be forwarded to The Adjutant General of the Army. The attainment of 75 per centum of the maximum will be considered satisfactory.

12. During the period of instruction and pending his appointment to the grade of fireman, the candidate will be detailed as an acting fireman and will be excused from all other duty.

13. For the present year the courses established will begin June 1, 1914, and applications should reach The Adjutant General of the Army not later than May 1, 1914.

3. Artillery course.—Mathematics to include algebra, plane geometry, plane trigonometry, and logarithms. Seacoast engineering. Surveying and topography. Photography and photoprinting. Artillery material, position finding, and range tables. Construction of war game material and instruction in the mechanical operation of the devices used.

Mechanical drawing, chart-making, and tinting. Machine shop practice, including use of hand and machine tools.

STUDENTS.

Students in the department of enlisted specialists consist of the following: Such candidates for appointment to the grades of master gunner, electrician sergeant, second class, and fireman as may be designated by the War Department; such master electricians, engineers, electrician sergeants, master gunners, and fireman as may be designated by the Secretary of War and, in addition, on the recommendation of the Chief of Coast Artillery, such enlisted men holding a certificate of proficiency in any course and awaiting appointment to the grade for which they have qualified, as may be designated by the Secretary of War to take any of the prescribed courses of study therein.

Any master electrician, engineer, electrician sergeant, master gunner, or fireman, who has been designated to take a prescribed course of study at the school and fails to complete such course to the satisfaction of the school board is discharged from the service for the convenience of the Government, and will not be eligible for appointment or to re-enlistment in the grade held by him at the time of his discharge.

In order to be eligible for a course of instruction, an enlisted candidate for master gunner, electrician sergeant, second class, or fireman, must have had at least one and one-half years' continuous service in the Coast Artillery Corps or the Coast Artillery School Detachment immediately prior to the beginning of the school term. A candidate stationed in the United States makes application to The Adjutant General of the Army, through military channels, on or before July 1, for permission to attend the school; a candidate stationed in the insular possessions makes application early enough to reach The Adjutant General of the Army not later than February 1. He must be practically familiar with one or more classes of machinery, apparatus, or equipment pertaining to the course selected, and satisfy his commanding officer of his ability to pursue successfully the course of study prescribed. Before admission to the school a candidate who complies with the conditions stated above is examined, in writing, under the direction of his commanding officer, in the presence of a commissioned officer, the questions for such examinations being prepared by the school board and sent to post commanders. The examination is held in the United States on May 1 and in the Philippine Islands on April 1.

Candidates for admission to the electrical course will be examined in the following subjects: (a) Arithmetic; (b) algebra, to include simple exercises (not problems) and the solution of equations of the first degree containing two unknown quantities; (c) elementary steam engineering; (d) elementary electricity and its practical applications; (e) elementary power transmission. For admission to the mechanical course candidates will be examined in: (a) Arithmetic; (b) algebra, to include simple exercises (not problems) and the solution of equations of the first degree containing two unknown quantities; (c) elementary practical knowledge of power plants; (d) elementary knowledge of machinery and machine and hand tools. For admission to the artillery course candidates will be examined in: (a) Arithmetic; (b) algebra, to include simple exercises (not problems) and the solution of equations of the first degree containing two unknown quantities; (c) plane geometry; (d) battery equipment and material.

The examination papers are forwarded directly to the commandant, who, on June 1 of each year, forwards to The Adjutant General of the Army his recommendations as to the candidates to be selected.

Those candidates who successfully complete the prescribed electrical course are furnished with certificates of proficiency, and are reported by the commandant to the War Department as eligible for appointment as electrician sergeants, second class. Those who successfully complete the prescribed mechanical course are furnished with certificates of proficiency, and are, in like manner, reported as elegible for appointment as fireman. Those candidates who successfully complete the prescribed artillery course are furnished with certificates of proficiency, and are, in like manner, reported as eligible for appointment as master gunners.

Unless otherwise directed the commandant, at the end of the school year, relieves from duty at the school those enlisted students who have failed to complete successfully the prescribed course of study, and by the authority of the Secretary of War orders men thus relieved to rejoin their proper station, provided the station be within the limits of the United States. The commandant may, also, at any time during the school year, relieve from duty and return to his station as indicated above, any enlisted student in the department of enlisted specialists who may have demonstrated his incapacity or unfitness to pursue the prescribed course of study.

THE SCHOOL YEAR.

The course of instruction commences on the third day of January of each year or on the following Tuesday when the third falls on Saturday, Sunday, or Monday, and the work of the school is carried on daily until the first day of the following December, except on Saturdays, Sundays, and the authorized holidays.

DISCIPLINE.

Discipline is maintained by the same rules and regulations as prescribed for the Army in general, and by the regulations adopted for the school.

CHAPTER IX.

THE ENGINEER SCHOOL, UNITED STATES ARMY.

(Washington Barracks, District of Columbia).

"In the old-fashioned view of life, each human being went through a period of preparation, which was followed by a distinct and separate period of life-work. When such a person left school or college he was thought to have finished his education and to have begun serious business. I think we have all come to see how artificial was this distinction and how evil were many of the results which followed from it. We now understand that well-developed men and women should allow their education to cease only when their life ceases. We no longer attempt to separate our years into two periods, one of training and the other of work. We hold rather that work should begin in the period of training and that training should continue throughout the period of active work."—*Arthur T. Hadley.*

HISTORICAL SKETCH.

Subsequent to the act of Congress March 16, 1802, which fixed the military peace establishment of the United States, there were no engineer troops in the service other than the company of Bombardiers attached for a short time to the Military Academy, until "Company A" was authorized by act of May 15, 1846, to meet the exigencies of the war with Mexico. After the close of this war this company was stationed at West Point where it assisted in the instruction of the cadets in practical military engineering, but its most important duty was along experimental lines, testing out different patterns of bridge trains which were calculated to take the place of the rubber pontoons. The experiments and investigations were conducted chiefly by Lieutenant Duane of this company, and proved to be of immense value during the Civil War.

On August 3, 1861, shortly after the outbreak of the Civil War, Congress authorized three more companies of engineers and on August 6th of the same year, one company of topographical engineer troops, the engineer service at that date being divided between these two corps. The engineers and the topographical engineers were consolidated by act of March 3, 1863, and four of these companies served as a battalion and was attached directly to the headquarters of the Army of the Potomac, participating in the campaigns of that army from Yorktown to Appomattox. Company E was recruited at Detroit in 1865. Congress formally recognized the battalion organization by act of July 28, 1866.

The original organization of Company A called for one hundred enlisted men, which was increased to one hundred and fifty men at the time the organization of the new companies was authorized. In the

reduction of the army after the Civil War the number allowed to be recruited for the entire battalion was fixed in December, 1870, at 354 men; on July 1, 1871, at 301 men; on July 3, 1873, at 350 men and on May 9, 1877, at 200 men. This number was increased to 450 men on August 5, 1884. The first reduction resulted in the breaking up of the posts at Yerba Buena Island and Jefferson Barracks, the reduction of Company D to a "skeleton" organization and the transfer of Company E to West Point.

After mustering out of the service of the Army of the Potomac at the close of the war the question arose what disposition should be made of the Engineer Battalion. After considerable indecision the following dispositions were made: It was decided to create an engineer post under the direct control of the chief of engineers at Willets Point, New York; to send Company A to West Point; to station Companies B, C, and D at Willets Point, and to send Company E to Jefferson Barracks, Missouri, where was to be stored the accumulation of engineer property remaining after the discharge of the western armies. Company D was subsequently transferred to California in August, 1867, and took its first station at Fort Point and later at Yerba Buena Island, and Company A was transferred from West Point to Willets Point on September 3, 1867, having been replaced at its former station by a small detachment from the Battalion. The instruction of the companies at the three posts was prescribed by the Battalion commander. He also acted as superintendent of the engineer recruiting service, officers of the corps on other duty at several cities having charge of the actual enlistments.

These were the dispositions and general conditions under which the Engineer School of Application originated. It was really divided between three stations, or posts, prior to the abandonment of Yerba Buena Island and Jefferson Barracks, in 1871.

When the Army of the Potomac was mustered out of service in the summer of 1865, General Duane who had been its chief engineer officer, reported for duty to General Delafield, then Chief of Engineers of the Army, and was assigned to the command of the Battalion of Engineers and ordered to take charge of the construction of the fortifications at Willets Point, and to command the new engineer post. Companies B and D were sent there to receive and store the engineer property and were later joined by Company C, which had remained at Washington to collect and ship the stores. In the autumn of 1865, Colonel Henry L. Abbott, who had been in command of a volunteer regiment, was assigned by General Delafield to the command of the

Battalion of Engineers which was at the time under the immediate command of Captain (Brevet Colonel) Harwood, General Duane's health being such that he was left in command of the post but relieved of the responsibility for the Battalion. It was not until June 1, 1866, that Colonel Abbott reported for duty at Willets Point, having in the meantime been ordered to report to General Humphreys for temporary duty on the Mississippi River.

There seemed to be something of a duplication of orders in the assignment of General Duane and Colonel Abbott to the command of the Engineer Battalion but this difficulty was fully met by an order issued by General Duane defining the relations existing between himself and Colonel Abbott as that existing between the superintendent and commandant at West Point. This was the relation that existed between these two officers at Willets Point until October, 1868, when General Duane was relieved from duty at this post.

In October, 1866, General Humphreys having succeeded to the command of the Engineer Corps made his first inspection of the post at Willets Point. At this time a plan for the School of Application for officers and men of the Engineer Corps was discussed. It was considered that the locality was well suited for the practical instruction of the troops in works of siege including land mining, in military bridge exercises, and in military reconnaissance of the surrounding country to serve as a basis for the study of defensive lines. A program for the officers was a more complex problem. Something to meet the actual needs of young officers resulting from the fact that while admirably trained at West Point in theoretical rudiments of their professions, and in many practical details of the military duties of all arms of service, they have still much to learn about the practical use and care of delicate surveying, astronomical and other instruments in constant employment by the Corps of Engineers. This needful practice had been secured before the war by early assignment to duty on the survey of the Great Lakes, or on exploration for a Pacific railroad, or the determination of international or state boundaries. In General Humphreys' view it would be inexpedient for a young officer to resume at once the studies and recitations which for four years had occupied so much of his time at West Point, as a post graduate course of technical reading. He thought the young graduate should be made to feel that his schoolboy days were over and that he was now responsible for the use of the time available for reading. In a word, Willets Point should be made a School of Application and not an undergraduate affair. It was also planned to

make the school a special laboratory of the Engineer Corps where with the assistance of officers and enlisted men any investigations requiring experimental research should be conducted. Such an establishment had always been needed by our army.

Such was the general plan which occupied the mind of General Humphreys to which Colonel Abbott acceded. The latter, however, suggested that, as some of the work that officers would be called upon to perform lay beyond the usual requirements at military posts, it would be well to have the War Department give the institution an official recognition as had been given in the case of the Artillery School at Fort Monroe, Virginia. General Humphreys did not agree with this suggestion, at least he thought best not to ask such recognition until some future date. He pointed out that the command of the Battalion carried with it the requisite authority for putting into effect the course of instruction, and that in case of any question his support could be depended upon. In other words, it was thought best to grope out a way at first until experience had indicated the best solution of the problem. Thus was inaugurated the original School of Application.

The roster of officers on duty with the companies at this time shows that all had graduated at the Military Academy at West Point during the progress of the war and had had no experience in the civil duties of the Corps of Engineers. Furthermore, the Battalion organization had not been recognized by Congress and had been improvised to meet the needs of an active field service. Graduates of the Military Academy on reporting for duty had all been assigned to a company, which method made the Battalion a sort of headquarters when the Army was stationary, but when a movement of troops occurred the demands for engineers with divisions and brigades caused so many temporary detachments of officers from the Battalion that it often marched under the command of the acting sergeant-major. Colonel Abbott appointed an adjutant and a quartermaster of the Battalion on October 3, 1866.

"On assuming command I had found the officer of the day receiving dress parades, first sergeants commanding the companies," says Colonel Abbott in his "Early Days of the Engineer School of Application." "Under such conditions the summer of 1866 was naturally devoted to establishing the usual routine of duty at a military post, and to carrying out Colonel Harwood's drill orders covering infantry, pontooneering and the construction of three field batteries."

The instruction ordered for the summer of 1867, which period marked the real beginning of systematic work, prescribed the completion of the battery, and a considerable amount of other practical work. The course in pontooneering covered all details, including rowing, bridge building with wood and canvas pontoons, loading and unloading the wagons, etc. In infantry it covered company, battalion, and skeleton drill in the school of the brigade, bayonet exercises, and Heth's target practice.

The lack of space forbids tracing from year to year the gradual development in summer instruction at the posts occupied by the Battalion of Engineers. In brief, however, this instruction covered verbal questioning of the soldiers by their officers at the model batteries; the practical driving of mining galleries; the explosion of gun powder and dynamite mines, the formation by small charges of cavities for camouflets in countermining; the construction and breaking of improvised bridges over dry ravines; the making of military maps by officers, noncommissioned officers, and selected privates upon the system defined by Battalion order in 1868, which had been adopted after large experience in the Civil War, and the rapid multiplication of military maps by various photographic processes. Practice in carpentry and masonry in the construction of the new post buildings was also given which work continued actively until 1875. Drills were held in a large circular building one hundred and ten feet in diameter, floored with moulding sand where the construction of batteries, parallels, saps and other works of siege on a scale of one-sixth was executed with great advantage. Elaborate instruction in submarine mining was also given.

During the winter of 1867-68 daily recitations in field fortifications, pontoon manual and infantry tactics, were prescribed for the noncommissioned officers. Company drills, bayonet exercises and other practical instruction suitable to the season were given the enlisted men. A school for soldiers had been authorized under act of Congress of July 28, 1866. It was opened under the following conditions:

"Attendance to be voluntary. Those desiring to attend to meet and elect three of their number to constitute a School Committee for the season, whose first duty would be to prepare a classified list of the studies desired. The necessary room, with fire, light, blackboards, tables, etc., to be provided without expense to the scholars; ultimately the Post fund assisted in the purchase of books. This school proved highly successful, the Battalion containing many men desirous to improve themselves by study. Three departments, mathematics, language and English branches were formed, including arithmetic, algebra, geometry, English grammar, French, Spanish, history, international law, geography, and penmanship. Four officers were detailed in each department, one to be present on three

nights for three consecutive weeks from 6:30 to 8:00 p. m. to hear and mark the recitations."

This school continued annually during the entire tour of duty of Colonel Abbott, ending in 1886.

A plan for making profitable use of the time of officers during the winter months when practical exercises were not feasible was worked out by General Duane and Colonel Abbott. This plan provided for a systematic study of the civil duties of the Corps, as most of the officers had just served with distinction in a great war, but had had no practical experience in their civil duties.

The proposed plan contemplated the organization of a club for individual reading and the preparation of papers on professional subjects for discussion. The idea at once proved popular and the result was the organization of the Essayons Club of the Corps of Engineers, which became the germ of the School of Application.

The active membership in the Essayons Club was composed of all officers on duty at Willets Point who desired to join and such other persons as should be unanimously elected. All the officers joined the Club. The honorary membership consisted of all other officers of the Corps of Engineers and such others as were unanimously elected. Meetings were held on Monday of each week during the season.

This plan proved highly successful. The first paper was read by General Duane at the first meeting of the Club held January 28, 1868. His paper pertained to the experiments conducted at West Point to develop the best patterns of bridge train for the Army. As the tactical work of the school increased meetings were held at longer intervals, and finally the club died a natural death in 1882.

This sketch would extend beyond a reasonable limit if it should be attempted to follow year by year the gradual development of the School of Application. The fundamental idea however, was the study of natural phenomena with a view to a specific application of the information acquired. As General Abbott expresses it:

"Reading can be done anywhere, research demands tools and skill in using them, and these are not to be had at ordinary stations of the Corps. It should be the function of the School to supply them."

In brief the work of the School included investigations and practical application in the fields of meteorology, military reconnaissances and surveys, field astronomy, tidal and current measurements, military photography, submarine mining service, and numerous other subjects having a close relation with the work of the Engineer Corps in both its civil and military functions.

Probably the most important work conducted at Willets Point during the first twenty years of its use as a school of application was researches connected with submarine mining. As early as May, 1869, General Humphreys, with the sanction of the Secretary of War, assigned to the Battalion of Engineers the duty of developing a torpedo system, as an accessory to the permanent seacoast defenses of the country. A great many experiments were made including the testing of various forms of explosives. During the course of these experiments close relations were maintained between the School of Application and the Naval Torpedo School at Newport. Visits were often exchanged and new ideas were mutually communicated.

A radical change in the methods of instruction took place in November, 1882. Prior to this time no regular recitations or examinations had been required. Under this change the three captains constituted, under the commanding officer, a board of instruction. They were individually to take military charge for one week in turn of the buildings and details of officers and enlisted men, and to direct the course of reading, experiments and drills. The student officers were divided into two classes according to their periods of service with the troops. The board held semi-annual examinations.

Again quoting General Abbott:

"It is a little singular, but it is nevertheless a fact, that the establishment was officially recognized as a torpedo school prior to its recognition as an engineer school of application. General Sherman who often visited Willets Point and took great interest in the researches in submarine mining, issued the following order through The Adjutant General's office on August 30, 1880:

"'When the number of subaltern officers absent from any of the artillery regiments does not exceed 11, the commanding officer of each regiment is authorized, with the approval of the department commander, to order one subaltern to Willets Point, New York, January 1st of each year, to serve six full months, to receive instruction in torpedo service.'"

Under the above order a class of artillery officers annually took the course in submarine mining under conditions prescribed in Battalion orders of January 3, 1881, which gave them in all respects the same advantages as the engineers.

A systematic course for the instruction of enlisted men in submarine mining was early inaugurated. During the summer season soldiers were practiced in planting and raising mines; in firing them; and in boat service generally.

It will be observed from what has gone before that the development of the Engineer School of Application was a gradual process. "To furnish the officers with every possible facility for perfecting themselves in a knowledge of the principal duties of the Corps, had

been kept steadily in view, and an advance had been made as rapidly as the means at hand would permit."

On September 24, 1890, the official title of the School was changed to "United States Engineer School." At this time there were five departments of instruction, viz.: Military Engineering, Submarine Mining, Civil Engineering, Practical Astronomy, and Military Photography.

In 1901 the name of the School was again changed to Engineer School of Application, U. S. Army, and the School was moved to Washington Barracks, D. C. In 1904 the School was designated the Engineer School, which is its present title.

As now organized there are three departments of instruction, Military Engineering, Civil Engineering, and Electrical and Mechanical Engineering.

In 1909 so much of Military Engineering as pertains to the mobile army was taken from the course and transferred to the Army Field Engineer School, at Fort Leavenworth, Kansas. (See Chapter VII).

The object of the Engineering School is to prepare the junior officers of the Corps of Engineers for the active duties of their arm and corps; to make researches in such branches of science as relate to the duties of the Corps of Engineers; to disseminate information so obtained; to make such experiments and recommendations and to give such instruction as may be necessary for the civil engineering work of the Army.

ORGANIZATION.

The Engineer School at Washington Barracks is under the supervision and control of the Chief of Engineers of the United States Army. It consists of a commandant, a secretary, and such directors, instructors, student officers, and troops as may be assigned to it for duty of instruction by orders from the War Department. The Chief of Engineers of the Army may correspond directly with the commandant of the school on questions of a technical character which do not involve matters of command, discipline, or administration and do not relate to the status or interests of individuals.

THE COMMANDANT OF THE SCHOOL.

The general administration of the school is intrusted to the commandant. In case of the absence or disability of the commandant the

senior engineer officer present for duty at Washington Barracks acts in his place in all matters pertaining to the school.

The commandant makes application to The Adjutant General of the Army for such articles of supplies as are required for the school, and directs the expenditure of such authorized quantities of material as are necessary.

The commandant submits to The Adjutant General of the Army, on or before August 31 of each year, a report of the operations of the school for the year ending on the 30th of June preceding, with such suggestions and recommendations as he deems desirable for the interests of the school. He also submits to The Adjutant General, on June 30th of each year, a detailed program of instruction to be carried out at the school during the ensuing school year. This program, when approved by the Secretary of War, with such modifications as are deemed necessary, is returned to the commandant for the information and guidance of the officers on duty at the school.

THE SECRETARY.

The secretary of the school is the custodian of the records, books, and property of the school, and the recorder of the school board. He conducts the correspondence of the school and promulgates the orders of the commandant.

The school library is maintained separate and apart from the post library at Washington Barracks. In case of loss or damage to any book, periodical, map, or other property belonging to the school, the person responsible for such loss or damage makes the same good by the payment of the actual cost of the article or the cost of repairs. This amount is assessed by the secretary of the school, whose action when approved by the commandant, is final.

DIRECTORS AND INSTRUCTORS.

When practicable the directors and instructors are senior in rank to the student officers, but whether senior or junior the directors and instructors while in the execution of their duty must be accorded the respect due to their position.

The directors, instructors, and student officers are exempt from all ordinary staff duties and garrison routine, from attendance at the garrison school for officers, from court-martial duty, from such drills and ceremonies as are not included in the course of instruction, and in general from all duties which would interfere with the performance of their functions in the school. In case of lack of sufficient

officers for the proper performance of garrison and post duty the commandant may, however, assign school officers to such duty.

THE SCHOOL BOARD.

The school board, consisting of the commandant, the directors, and the instructors, arranges the program of instruction as to subjects, text-books, and allotment of time; prescribes the character and scope of the examinations and re-examinations, and has final determination of all questions of proficiency of students. No action of the board which changes the regulations of the school or the course of instruction is final until approved by the Secretary of War. The school board meets at such times as the commandant deems advisable.

The deliberations of the school board and its decisions until duly published are confidential.

The course of the school begins October 1st of each year and ends on March 31 of the second year following. Sessions of the school are held daily, except Sundays, holidays, and the period from December 23 to January 4, both inclusive, but Saturday sessions terminate at 12 o'clock M. Practical work or practice is combined with the theoretical work in all subjects in which it can be advantageously done, and includes the use and operation of instruments, apparatus, and machines; field astronomy; photography and map reproduction; geodetic and hydrographic surveying, and garrison and field duties with engineer troops.

The course of instruction is divided into three departments, as follows:

(a) Military Engineering.
(b) Civil Engineering.
(c) Electrical and Mechanical Engineering.

The school board may transfer from one department to another such of the subjects hereinafter mentioned as it deems desirable for the equalization of duties of directors and instructors.

In the different departments instruction is given in the following subjects:

DEPARTMENT OF MILITARY ENGINEERING.

Seacoast defense, including land defense.
Ordnance, armor and explosives.
War ships and sea power.
Photography and map reproduction.

DEPARTMENT OF CIVIL ENGINEERING.

Surveying, geodetic and hydrographic.
Field astronomy.
Cements and mortars.
Concrete and masonry.
Foundations.
Roofs and bridges.
Building construction.
Heating and ventilation.
Water supply.
Sewage disposal.
River and harbor improvement.
Light-house construction.
Construction plant.
Contracts, specifications, estimates and accounts.

DEPARTMENT OF ELECTRICAL AND MECHANICAL ENGINEERING.

Direct current machinery and storage batteries.
Alternating current machinery.
Electric power transmission.
Electric lighting and searchlights.
Fire control apparatus.
Steam power electric machinery.
Hydro-electric power machinery.
Internal combustion engines.
Electric power plant design.

In connection with the prescribed course of instruction in the several departments, visits are made to points where important engineering works are in progress, when such visits are approved by the Chief of Engineers and authorized by the Secretary of War.

EXAMINATIONS.

Subject to the following limitations, examinations are held under such rules as the school board may prescribe, as soon as practicable after the final review in each subject.

An officer declared deficient in any subject may apply in writing for re-examination in that subject, but such an application must be made immediately after the announcement of the result of the original examination. A re-examination is of such character as may be determined by the school board and is held with as little delay as practicable.

Officers who have been unable to complete the entire course receive certificates of proficiency signed by the commandant in such subjects as have been satisfactorily completed.

A student officer, who by reason of sickness or other unavoidable cause has been absent from an examination or has been unable to complete entirely any course with his class, may be permitted, in the discretion of the school board, to complete the said course and be authorized to take the necessary examination before or within a reasonable time after the graduation of his class.

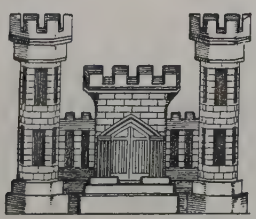
DISCIPLINE.

The school is governed by the rules of discipline prescribed for military posts in the army and by special regulations formulated by the school board and approved by the Secretary of War.

GRADUATION.

A student officer who successfully completes the entire course of instruction receives a diploma setting forth his proficiency and his name is thereafter borne upon the Army Register (the annual directory of the Army) as a graduate of the Engineer School at Washington Barracks. Diplomas are signed by all members of the school board. The fact of graduation of each officer is reported to The Adjutant General of the Army as soon as practicable thereafter.

Graduates of the school are exempt from professional examination for promotion in all subjects covered by their diplomas for a period of two years after graduation. Officers not graduates, holding certificates of proficiency in any subjects embraced in the course, are similarly exempt from such examination in the subjects covered by their certificates of proficiency for a period of two years from the date of such certificates.



CHAPTER X.

THE MOUNTED SERVICE SCHOOL.
(Fort Riley, Kansas).

"We have no example of soldiers being wanting in their duty in the most desperate situations, where they are commanded by officers of approved resolution."—*General Burnod.*

HISTORICAL SKETCH.

The Mounted Service School had its beginning in an act of Congress approved January 29, 1887. This act was published in General Orders from the War Department under date of February 9th of that year. The act reads as follows:

"1. An act to provide a school of instruction for Cavalry and Light Artillery, and for the construction and completion of quarters, barracks and stables at certain posts for the use of the Army of the United States.

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that the Secretary of War be, and he is, hereby authorized and directed to establish upon the military reservation at Fort Riley a permanent school of instruction for drill and practice for the Cavalry and Light Artillery service of the Army of the United States, and which shall be the depot to which all recruits for such service shall be sent; and for the purpose of construction of such quarters, barracks and stables as may be required to carry into effect the purposes of this Act the sum of two hundred thousand dollars ($200,000), or so much thereof as may be necessary is hereby appropriated out of any money in the Treasury not otherwise appropriated."

Fort Riley is a War Department reservation of about 20,000 acres. Sometime prior to the passage of the above act some of the citizens of Kansas started a considerable agitation to have this land thrown open to settlement on the ground that it was no longer needed by the government. The post was originally built in the fifty's and at this time was small, old, and much out of repair. When General Philip H. Sheridan, then Lieutenant General of the Army, received knowledge of this move he made recommendation that steps be taken to improve and remodel the post so as to accommodate a full regiment of cavalry and that a school for cavalry and light artillery be established there.

Within a year of the above enactment making appropriation for the improvement of this fort work had commenced on the erection of handsome stone buildings for a permanent post. This construction work went on slowly and the establishment of the school was delayed until the year 1891.

The "United States Cavalry and Light Artillery School" as established in 1891 was organized and developed by Col. James W.

Forsyth, 7th Cavalry, (afterwards Major General) who was the first commandant of the school. The troops stationed there consisted of eight troops of the Seventh Cavalry and three batteries of Light Artillery.

The organization of the school and the course of instruction to be pursued had been under consideration since 1887. A plan submitted by Col. Forsyth was adopted and published in orders from headquarters of the Army in 1892.

First Lieutenant J. Franklin Bell, Adjutant of the Seventh U. S. Cavalry, (now Major General U. S. A.) was the first secretary.

When the school was first established there was considerable discussion between the commandant and the major general commanding the Army, concerning limitations imposed on the development of the school by allowing no theoretical instruction. The school was intended to incorporate every kind of practical training which the regulations and orders require to be incorporated at military posts. In the discussion over this matter Col. Forsyth stated that, "As the husbandman prepared the soil before sowing his seed it is thought not unwise to require some personal preliminary preparation of the intellectual soil, lest the instruction practically imparted have no permanent or beneficial effect." Major General Schofield, commanding the Army, expressed the intention of the War Department to observe strictly as far as practicable the provisions of the act establishing a school for instruction in "drill and practice."

Following the establishment of the school proper, two sub-schools were organized, viz.: The Sub-school for Artillery and the Sub-school for Cavalry. The former had Major W. F. Randolph, 3d Artillery, (later Major General and Chief of Artillery) as its director and the latter Major S. M. Whitside, Seventh Cavalry (later Brigadier General U. S. Army). A school for instruction of the Hospital Corps under command of Major John Van R. Hoff, Surgeon, (later Colonel Medical Corps, U. S. A., now retired). A school for the Signal Corps commanded by Lieut. J. E. Maxfield of the Signal Corps (later Major Signal Corps, now retired) was also instituted.

The course first proposed and finally adopted was for the training of cavalry and field artillery in all that pertains to field service in time of war and in the combined operation of these arms of the service. Nine months constituted the period for separate instruction of these branches and three months for combined maneuvers.

The details of the course of instruction were constantly being changed and the continuity was often broken by shifting of troops

to other stations. In the annual practice little opportunity was found for the combined maneuvers as contemplated.

The Commandant submitted an estimate in 1892 for funds to be available to pay incidental expenses, no fund for this purpose having been provided. It was not, however, until 1897 that the first appropriation amounting to $2,000 was available.

As was the case with other War Department schools, the Spanish-American War caused a complete shutdown of this institution as far as instruction was concerned, from April 19, 1898, until September 11, 1901. The work of constructing the buildings, however, proceeded without interruption. An appropriation of $75,000 had been set aside for buildings at this post the year preceding this war. It is a matter of interest to note that the commandant's annual report for 1898 was rendered by a second lieutenant. It was not until the school year of 1903-4 that the school really got on its feet again and a systematic and adequate course of instruction resumed. The progress made during this year was of more than ordinary interest.

On January 25, 1903, the Training School for Farriers and Horseshoers was opened, with Captain W. C. Short, Thirteenth Cavalry in charge. This school at first occupied all sorts of makeshifts for quarters, shops and recitation rooms but in the face of these obstacles managed to graduate 340 enlisted men.

During the following year the large barracks and the model shop were completed and the school has since done most excellent work handling two classes annually. The capacity of this school has at present about 120 men in each class.

The Training School for Bakers and Cooks was opened February 15, 1905, with Captain M. S. Murray, Commissary, U. S. Army, in charge. The enlisted men detailed for the course of instruction in this school came from all branches of the service. During the first year of its existence the detachment attending this school were without barracks and had to be provided for in camp. Special attention has been given to handling field bakeries and organization messes. A number of field ovens have been experimented with and several manuals of instruction for the running of messes, and on kindred subjects have been issued. The school now enjoys a splendid reputation and the work it is doing in turning out competent field bakers and organization cooks is very satisfactory and of great aid to the military service. Though the course taught in this school is not prescribed as part of the officers' course, officers frequently apply for permission to take it.

The department of equitation started off with a class of student officers on the 10th of January, 1905, with Capt. W. C. Short, 13th Cavalry, as instructor. Col. Forsyth the first commandant early recognized the importance of this branch of the school work. In his annual report some years prior to the establishing of this course he stated:

"If the school is ever to become what its promoters hoped it might, viz.: a seat of instruction imparted in accordance with the latest development in connection with the art of making expert soldiers, the service of a high school riding master who is not subject to change with every changing squadron, should be provided."

The development of this department as compared with other branches in the student officers' course has probably been the greatest. The Mounted Service School as it is now termed, has practically turned into a school for horsemen, and the methods pursued at the Saumur School of France are largely in use and this system of equitation has been officially adopted throughout the Army.

The course of instruction at this school prior to 1904 covered but one year, the student body being composed entirely of officers who were members of organizations forming the regular garrison at Fort Riley. As the tour of duty of troops stationed at this post ran for three or more years it was necessary for subalterns to repeat the course year after year. To obviate this, a progressive course covering a period of three years was prepared and adopted in 1905 and 1906. The subjects taught were somewhat more extensive than those previously taught.

It was found to be impracticable to adhere to the policy of the three years' course owing to the indefinite periods of assignment of troops at this post. In 1906 there were no graduates of the three years' course, however a class of eight officers who were graduates of West Point were given a special course and completed it in this year.

It was recognized in 1906 that the work of the school prior to this time was largely experimental. In his annual report for this year, Col. E. S. Godfrey, 9th Cavalry, (later Brig. General) the Commandant, made the following statement:

"A crying need in our service is a system of equitation and a school of instruction where that system can be properly exemplified and taught, and its graduates distributed throughout the mounted service to become instructors of others. The adoption of a system of equitation was under consideration by the War Department; but while the course in equitation at Fort Riley was excellent, it would not meet all the requirements because the long tour of duty and the spreading of the course of instruction over three years made the number of graduates insufficient.

"By the elimination from the course here of most of the subjects taught in the garrison schools and of all theoretical work that can be done as well at other posts, a course of instruction was prepared, covering but one year, thus multiplying by three the number of students who could be graduated in a given time. This was approved by the War Department, July 23, 1906."

The reorganization of the course was made practically along the lines recommended by Col. Godfrey. In the latter part of 1907 more radical innovations were made with the beginning of the school year, which were necessary in order to make effective the reorganization of the school along more up-to-date lines. The name of the school which was originally "The Cavalry and Light Artillery School," afterwards changed to the "School of Application for Cavalry and Field Artillery," at this time received the name it now bears, "The Mounted Service School." The school for Cavalry and the school for Light Artillery were abolished, because garrison schools and drills at many large posts and the frequent maneuvers on a large scale offered the facilities for instruction along this line which were originally sought in establishing these sub-schools.

The course in Equitation and Horse Training was extended and systematized. The student officers spent 872 hours in the saddle under their instructors as compared with 75 hours in 1904. The number of hours so under instruction has been extended until in 1911 it had reached 1320 hours during the school term.

In summarizing the early history of the school it is well to note that the student personnel prior to 1907 was composed of officers who happened to be stationed at the military post of Fort Riley, and that the course for cavalry officers differed from that of artillery officers, and in some cases an abridged course only was taken. Diplomas embodying a list of the subjects in which the recipients were pronounced proficient were issued to those who completed the course.

As a result of this system the courses were not always uniform. The War Department issued a circular in 1907 which was especially worded so as to permit the names of those officers who had satisfactorily taken the full course prescribed for their arm of the service and class to be carried on the Army Register (the Army directory of officers) as graduates of that class, so as to make a marked distinction between graduates of "The Mounted Service School" and the former so-called "School of Application for Cavalry and Field Artillery."

The Mounted Service School of the United States Army is located at Fort Riley, Kansas. The school includes the following subschools:

1. The School of Equitation.
2. The School for Farriers and Horseshoers.
3. The School for Bakers and Cooks. (See Chapter XIV.)

ORGANIZATION.

THE PERSONNEL AND STAFF.

The personnel of the schools consists of all officers, enlisted men and civilian employees on duty in connection with the schools.

The Staff consists of all officers not students other than the commandant.

The senior officer on duty with each of the several schools is in charge, under direction of the commandant, of the school to which he is assigned, and attends to the details of administration and instruction therein.

THE COMMANDANT.

The commandant is a field officer of the mounted service, who is selected and named for this position by the Secretary of War. In case of his absence or disability to perform his duties the senior officer of the staff acts as commandant.

The commandant supervises the methods of instruction and sees that the work of the several subschools is coordinated and that cordial cooperation is maintained at all times.

He is authorized to convene the school board for any matters affecting the school. At these sessions the senior officer present presides.

The administration of the school is intrusted to the commandant. The appropriations for its support and for the purchase of school property is disbursed only on vouchers approved by him.

He makes application for officers for service on the staff of the school, and assigns them to duties as may be necessary.

Not later than August 31 of each year he submits a report regarding the progress and needs of the school. Before August 1st of each year he submits a detailed program of the course of instruction, with a list of reference books. When approved by the Chief of Staff of the Army this program and list are returned to him with authority to publish them for the information and guidance of all concerned.

All special communications relating to the school from the officers on duty with it are addressed to the commandant.

THE SECRETARY.

The secretary is the recorder of the school board, conducts the correspondence of the school and publishes the orders and instructions of the commandant. He is custodian of the books and other property of the school, and, under the direction of the commandant, disburses the funds allotted to the Mounted Service School.

THE SCHOOL BOARD.

The officers in charge of the several subschools constitute the school board. The secretary of the Mounted Service School is also secretary of the school board. He is the custodian of the records of the board. The office of secretary entitles him to no vote.

The school board arranges the program of instruction as to subjects, textbooks, and allotment of time; supervises, under direction of the commandant, the methods of instruction and work in the several subschools, the preparation of reports and schedules, assists the commandant in coordinating the courses of instruction and securing uniformity in the publications of the school; prescribes the character and scope of the examinations, and determines the question of proficiency of the various students.

A majority of the school board constitutes a quorum to do business, but no action or recommendation of the board is carried into effect until approved by the commandant. No action which would change the regulations of the school or the course of instruction is final until approved by the Chief of Staff of the Army.

All deliberations, discussions, and individual votes are considered confidential.

INSTRUCTORS AND STUDENT OFFICERS.

Senior instructors of the various subschools are assisted by such number of instructors assigned by the commandant as may be required. When practicable, instructors are senior in rank to student officers, but whether junior or senior they must be accorded the respect due their position while in the execution of this duty.

Except in emergency the personnel of the school is exempt from all ordinary staff duties and garrison routine, from court-martial duty (except in case of necessity), from such drills and ceremonies as are not included in the course of instruction, and in general, from all

duties which would interfere with the performance of their functions in connection with the school.

THE SCHOOL LIBRARY.

The school library is maintained separate and apart from the post library of Fort Riley, Kansas.

The librarian, under the direction of the commandant, is charged with the administration and interior economy of the library. He is responsible for the books and other property therein and renders an annual report thereof to the commandant.

There is a library committee for the school which consists of the secretary, who is the librarian, and two other officers designated by the commandant from among those belonging to the school staff. This committee is charged, under the direction of the commandant, with the preparation of regulations for the administration and interior economy of the library and with the selection of books to be purchased.

In case of loss or damage to any book, periodical, map or other property belonging to the school, the person responsible for such loss or damage pays to the school the actual cost of the article or the cost of the repairs. This amount is assessed by the secretary of the school whose action, when approved by the commandant, is final.

ADMINISTRATION.

The Mounted Service School is governed by the rules of discipline prescribed for military posts and by its own special regulations. Matters pertaining to it and to the course of instruction are subject exclusively to the control of the War Department.

Communications for officers and men on duty at the school are sent through the post commander directly, and not through department headquarters, unless the communication is of such nature as to require the action of those headquarters.

The object of the school is to give practical instruction. Theoretical instruction is confined to the needs of the school and is carried on concurrently with the practical instruction.

Unless otherwise directed, the post commander at Ft. Riley, upon completion of the course and upon application of the commandant, relieves all detailed officers and enlisted men from duty at the school, and by authority of the Secretary of War, orders them to join their proper stations. Officers whose stations are in Hawaii or the Philippine Islands arrange for transportation with the Chief of the Quartermaster Corps, and report at San Francisco, California, in

time to embark on the army transport designated by that officer. The post commander sends the enlisted men so relieved whose organizations are in Hawaii or the Philippine Islands, to Fort McDowell, California, to be forwarded to their proper stations.

The post commander, upon recommendation of the school board, approved by the commandant, also relieves from duty and returns to their proper stations such students as demonstrate their lack of capacity or fitness to pursue the course of instruction to its completion.

The post commander, upon recommendation of the commandant, relieves from duty upon expiration of detail members of the school staff and issues the necessary orders in each case.

During the course of instruction leaves of absence to officers involving absence from duty, are not granted, without the authority of the Secretary of War, except in case of emergency, and then only for a period not exceding ten days at any one time.

SUBSCHOOLS.

THE SCHOOL OF EQUITATION.

The School of Equitation embraces four courses, viz.:

1. The Course for Field Officers.
2. The First Year Course for Company Officers.
3. The Second Year Course for Company Officers.
4. The Course in Swordsmanship for Noncommissioned Officers.

THE COURSE FOR FIELD OFFICERS.

(a) There are detailed for instruction in equitation, in two classes annually, such number of field officers of Cavalry and Field Artillery, not exceeding 15 in each class, as the Secretary of War may direct.

(b) Field officers of other branches of the service may be detailed upon the approval of the Secretary of War.

(c) When the number of field officers detailed for any class falls below 15, enough senior captains of the mounted services may be detailed to make up this number.

(d) Officers so detailed retain quarters at their permanent stations, and such temporary quarters as are available at Fort Riley are provided by the post commander. Transportation of baggage for a temporary change of station is allowed.

(e) The post commander details for this course such field officers stationed at Fort Riley as may be considered available.

(f) The courses of instruction begin April 1 and October 10 and end May 31 and December 20, respectively.

(g) This course has for its aim instruction of officers in superior horsemanship, familiarizing them with the general methods of the school, and in the practice of military cross country riding. Only such theoretical instruction is given as will not interfere with these aims or with any practical work.

(h) The course of instruction includes:

1. Practical: Observation of work of company officers in breaking, training and schooling; use of flat saddle; instruction in the middle school of horsemanship; training of the military horse; jumping; cross country riding; and instruction in swordsmanship.

2. Theoretical: Lectures and demonstrations covering the following subjects: Breeds, breeding, blood lines; stables and stable management; grooming; shoeing; feeds and feeding; conditioning; conformation; soundness; work and aims of School for Farriers and Horseshoers; work and aims of School for Bakers and Cooks.

(i) Officers desiring the detail forward applications therefor through military channels by January 1st and July 1st, respectively, of each year.

(j) If for any reason officers do not qualify in the course, this fact is reported to the Adjutant General of the Army.

THE FIRST YEAR COURSE FOR COMPANY OFFICERS.

(a) There are designated annually for instruction in the First Year Course not to exceed 26 officers of Cavalry and 10 officers of Field Artillery, who are selected from captains or lieutenants who have been recommended by regimental commanders.

(b) Officers of other branches of the service may be admitted upon the approval of the Secretary of War.

(c) The post commander is authorized to detail, in addition to the foregoing, such officers belonging to organizations stationed at Fort Riley as in his opinion are available and suitable and for whom there are school accommodations.

(d) Officers are recommended and selected for detail upon the basis of zeal in their work, special adaptability for advanced equitation and horse training, and excellent physical condition, attested by surgeon's certificate; aptitude and proficiency shown in regimental schools is considered in making selections.

(e) No officer is detailed who has had less than two years of service as a commissioned officer. Details are not made from regiments stationed in the Philippine Islands.

(f) The tour of duty of student officers in this course covers the period from the 25th of September to the 30th of the following June, inclusive.

(g) The course of instruction is included in one term, beginning on October 1st and ending June 30th, following. There is a suspension of school duties from December 24th to January 2nd, both inclusive.

(h) The course of instruction includes:

1. Equitation and Horse Training: Practical instruction in the middle school of horsemanship, including the breaking and training of the troop horse and officer's charger; in correction of vices; in jumping; in cross country work.

2. Care of Horses: Practical work, supplemented by lectures in stable management; in conditioning; in grooming; in feeding; in improving the appearance of the horse by pulling and plucking manes and tails, trimming, singeing, and braiding; bandaging for work and rest.

3. Hippology: Theory of the anatomy and diseases of the horse; tests in determining the age of horses; tests in examining horses for soundness, conformation, and suitability for service; exercises in diagnosis of diseases; hospital work; attendance at operations and dissections.

4. Horseshoeing: Preparing the foot; fitting shoes; normal shoeing; shoeing to correct faults in gaits; pathological shoeing; inspection of shoeing.

5. Forage: Tests and inspections.

6. Harness and Transportation: Taking apart and assembling harness and wagons; harnessing; principles of driving; entraining and detraining animals and wagons.

7. Pioneer Duties: Including the use of explosives.

8. Swordsmanship: Use of the saber mounted and dismounted; individual combat, running at heads, fencing.

9. Care of Equipment: Practical demonstrations and talks on cleaning and preserving leather.

10. Breeding: Lectures on breeds, breeding and blood lines.

(i) An officer's proficiency and class standing in any subject is determined by the marks attained by him in his daily work, and review examinations. No final examination is held. At the com-

pletion of a subject the senior instructor or officer in charge submits a report, after consulting with the other instructors, setting forth the proficiency or deficiency in that subject of each officer, with suitable remarks.

(j) Officers who pass successfully through the entire course of instruction receive diplomas setting forth their proficiency.

(k) At the conclusion of the First Year Course, the school board submits to the commandant reports upon the qualifications of student officers in that course; states the special employment for which any of them appear to be fitted; and recommends not exceeding 10 of those graduates of the First Year Course, deemed best qualified, for detail for instruction in the Second Year Course. The commandant forwards these reports and recommendations with such remarks as he deems proper, through the post commander, to The Adjutant General of the Army.

(l) The commandant also forwards, through the same channel, to The Adjutant General of the Army, a list of the graduates of the First Year Course, whose names are thereafter borne upon the Army Register as "Graduate, First Year Course, Mounted Service School."

(m) Officers who are unable to complete the entire course of instruction receive certificates of proficiency in such subjects as shall have been satisfactorily completed by them.

(n) An officer declared deficient in any subject is reported to The Adjutant General of the Army, at the end of the school year, with a statement as to the probable cause of failure.

THE SECOND YEAR COURSE FOR COMPANY OFFICERS.

(a) There are detailed annually for instruction in the Second Year Course not exceeding 10 graduates of the First Year Course who have received the recommendations of the school board approved by the commandant.

(b) While awaiting the issue of orders by the War Department in their cases, the post commandant at Ft. Riley is authorized to retain at the post after graduation those officers, not exceeding 10 in number, who have been recommended for instruction in the Second Year Course.

(c) The course of instruction begins July 1 and ends June 30 of the succeeding year.

(d) The course of instruction for the officers selected consists of advanced work in equitation and swordsmanship, having in view their preparation for future details as instructors in equitation and

swordsmanship with their respective regiments and at the various service schools, and for instruction at foreign schools of equitation. To this end they act as assistants to the regular instructors and are given advanced instruction along the following lines: Training and schooling special school horses; training difficult horses; cross country work; hunting; polo; training and conditioning for horse shows, competitions, steeple chases, etc.; care, conditioning and training of remounts; grooming and stable management; care of equipment; swordsmanship.

(e) Officers who pass successfully through the entire course receive diplomas setting forth their proficiency.

(f) At the conclusion of the Second Year Course, the school board submits to the commandant reports upon the qualifications of the student officers in this course with a statement of the special employment for which any of them appear to be fitted.

The commandant forwards these reports with such remarks as he deems proper, through the post commander to The Adjutant General of the Army.

(g) The commandant also forwards, through the same channel, to The Adjutant General of the Army, the list of graduates of the Second Year Course, whose names are thereafter borne upon the Army Register as "Graduate, Second Year Course, Mounted Service School."

Considerable impetus was given to instruction in equitation during the administration of President Roosevelt. It was he who instituted "test rides" as a condition to promotion of mounted officers. In a letter to Secretary of War Wright in 1908, his views on the importance of training in horsemanship are clearly shown:

"We now have several graduates of Saumur, one of whom is teaching equitation at West Point and another at the Mounted Service School. I am glad that the officers who have had the advantage of training in this celebrated French School should be utilized as instructors in our Army. We have hitherto had no regular system of equitation whatever; we have many excellent horsemen, who, indeed, in their own line are unsurpassed; but there is urgent need that this excellent individual horsemanship should be supplemented by the application of systematic instruction in equitation.

"As the French system is now being thoroughly taught at the Mounted Service School, I think the graduates of that school also should be utilized as instructors. Will you please see that the necessary orders are issued requiring them at their several posts and in their several regiments to give as much instruction in equitation as possible to lieutenants and soldiers (especially noncommissioned officers) and to such captains as may volunteer?"

President Roosevelt was no doubt a believer with Lord Bacon that "Learning should be made subservient to action."

THE COURSE IN SWORDSMANSHIP FOR NONCOMMISSIONED OFFICERS.

(a) There are detailed annually for instruction in swordsmanship specially qualified and recommended noncommissioned officers of Cavalry.

(b) On August 1 the commanding officer of each regiment of Cavalry serving within the continental limits of the United States recommends to The Adjutant General of the Army a carefully selected noncommissioned officer of his regiment for instruction in this course.

(c) The course of instruction begins September 30 and ends March 31 of the succeeding year.

THE COURSE FOR FARRIERS AND HORSESHOERS.

(a) In this school there are annually two courses of four months each, viz., February 15 to June 15 and July 15 to November 15, and in addition a course of one month from January 15 to February 14, inclusive, of instruction in horseshoeing for the sergeants in charge of stables of the organizations serving at Fort Riley. The object of this last course is to train sergeants in charge of stables so that they are able intelligently to supervise the work of their troop and battery horseshoers.

(b) The classes for farriers and horseshoers under instruction are composed of specially recommended men, detailed from the various mounted organizations of the service.

(c) For farriers the men selected must be intelligent and well grounded in reading, writing and arithmetic. For horseshoers the men must be intelligent and of suitable conformation for the work.

(d) Details are made by the department commanders without exceeding the accommodations of the school. Department commanders are authorized to correspond directly with the commanding officer of the post for this purpose.

(e) The post commander at Ft. Riley, Kansas, is authorized to detail, in addition to the foregoing, suitable men belonging to organizations stationed at Fort Riley.

(f) Commanders of organizations note in the descriptive lists of men ordered for instruction, "farrier class" or "horseshoer class," depending upon the nature of the instruction.

THE SCHOOL FOR BAKERS AND COOKS.

(a) The course of this school is four months, but enlisted men of previous experience or of marked ability may, when deemed pro-

ficient by the officer in charge, be graduated after three months' instruction. Enlisted men who are unable to qualify within the four months, but who have nevertheless demonstrated their fitness for the work, may be retained for additional instruction for a period not to exceed one month. There are continually under instruction four classes of bakers and four classes of cooks, a new class of each enters on the fifteenth of every month.

(b) The classes under instruction are composed of enlisted men specially recommended by regimental or other organization commanders, and of reenlisted men from recruit depots, specially selected and recommended by the commanding officers of the depots.

(c) The enlisted men recommended are required to be well grounded in reading, writing and arithmetic.

(d) A regimental or other organization commander desiring to enter a soldier in this school makes application for the privilege through military channels to the department commander. Applications may be forwarded at any time. The commanding officer of each regiment serving within the limits of the Central Department takes proper steps to have at least one graduate baker available with his regiment.

(e) Commanding officers of recruit depots, within the limits of the Central Department, make timely application for details from these depots in accordance with the respective needs thereof.

(f) Details are made by the commanding general of the Central Department in order to meet the actual needs of the service without exceeding the accommodations of the school.

(g) The post commander is authorized to detail, in addition to the foregoing, suitable enlisted men belonging to the organizations stationed at Fort Riley.

(h) Commanders of organizations note in the descriptive lists of men ordered for instructions, "bakers' class," or "cooks' class," depending upon the nature of the instruction desired.

This school for bakers and cooks is entirely separate and apart from the schools for bakers and cooks at the Presidio of San Francisco, California, and Washington Barracks, District of Columbia. The course of instruction, however, is very much the same. (See Chapter XIV for character of course of study.)

INSTRUCTION OF GENERAL APPLICATION TO ALL DETAILS OF ENLISTED MEN TO THE MOUNTED SERVICE SCHOOL.

1. Enlisted men recommended for detail as students in any of the courses must, in addition to the qualifications set forth separately under each course, fulfill the following conditions:

(a) They must have two years to serve, or, if they have had less than that time to serve, have signified in writing their intention to reenlist. In no case are men selected whose enlistments would expire while at the school.

(b) They must be of excellent character, in good physical condition, attested by a surgeon's certificate, a copy of which must accompany the descriptive list.

(c) They must be willing to accept the detail.

2. (a) Before being sent to the school enlisted men detailed for any of the courses of instruction are provided with sufficient clothing (including two suits of fatigue uniform) to last the full period of instruction for which detailed.

(b) Descriptive lists are mailed promptly.

(c) Trunk lockers, blankets, etc., if the property of the United States Government, are noted on the descriptive lists.

(d) A list of clothing in possession of the soldier accompanies his descriptive list.

The Special Regulations for the Mounted Service School, when approved by the Chief of Staff of the Army, are published from time to time by the commandant.

CHAPTER XI.

THE UNITED STATES ARMY MEDICAL SCHOOL.
(Washington, D. C.).

"The epoch of peace and prosperity with which our land is now blessed cannot last forever. Until human nature shall rise above its present weaknesses the selfish aggressions of one people will occasionally clash against the interests of another; policies of different nations will come into collision and the sword will be used to cut the knot diplomacy cannot untie. However peaceable and non-aggressive a nation may be, circumstances may present it with the choice of several evils of which war will be the least.— ***Colonel A. L. Wagner.***

HISTORICAL SKETCH.

The Army Medical School located at Washington, D. C., was established pursuant to orders of the War Department on the 24th of June, 1893, "for the purpose of instructing approved candidates for admission to the Medical Corps of the Army in their duties as medical officers."

The first session commenced November 1, 1893, and continued four months, with a faculty of four professors occupying the chairs of:

1. President of the Faculty, who gave a course of lectures on the duties of medical officers in war and in peace (including property responsibility, examination of recruits, certificates of disability, reports, rights and privileges, customs of the service).

2. Professor of Military Surgery (including care and transportation of wounded).

3. Professor of Military Hygiene (including practical instruction in the examination of air, water, food and clothing from a sanitary point of view).

4. Professor of Clinical and Sanitary Microscopy (including bacteriology and urinology).

The late Major Walter Reed, now famous as the President of the Board of Medical Officers who discovered the mode of transmission of yellow fever, was the first Professor of Clinical and Sanitary Microscopy.

With the exception of the three years, 1898-1901, during and following the Spanish-American War, the School has held yearly sessions. Its scope of instruction and its classes have, in the meantime, been materially enlarged.

In the beginning of the School, the student officers were the recently commissioned first lieutenants of the Medical Corps. The plan

PRACTICAL AND LABORATORY INSTRUCTION, U. S. ARMY MEDICAL SCHOOL, WASHINGTON, D. C.

to first commission the officer and then assign him to the School was not satisfactory. Students who were found by observation to be temperamentally, or otherwise, unfitted for their duties as medical officers could not be eliminated except by dismissal following a court-martial. Legislation has since made it possible to assign approved candidates to the school with the rank of first lieutenant in the Medical *Reserve* Corps, a position the tenure of which may be terminated by the Secretary of War at any time. The candidate is not commissioned in the Regular Army until he has completed the School course and the faculty is satisfied that he is qualified mentally, morally, physically and temperamentally, to perform the duties of a medical officer of the Army.

The subjects taught in the School are at present as follows:

1. Military Surgery.
2. Medical Department Administration.
3. Military Medicine and Tropical Medicine.
4. Military Hygiene.
5. Bacteriology, Pathology, and Clinical Diagnosis.
6. Ophthalmology.
7. Sanitary Chemistry.
8. Sanitary Tactics.
9. Operative Surgery.
10. Radiology.

In addition to the foregoing, the following instruction is given:

Equitation, on one afternoon a week, at Fort Myer, Virginia, by an officer of the Cavalry service.

A series of lectures on Psychology, at the Government Hospital for the insane, by the Superintendent of the hospital.

A series of lectures on Military Law, by an officer of the Judge-Advocate General's Department.

One or more lectures by each of four distinguished members of the medical profession on the Inactive List of the Medical Reserve Corps, upon topics chosen by the lecturer.

The Army Medical School consists of the School Board, the students, and such enlisted men of the Medical Corps of the Army as may be assigned to it for duty. The object of the School is, as stated in the Historical Sketch, to train the students in such subjects as are appropriate to the duties which an officer of the Medical Corps of the Army may be called upon to perform.

THE SCHOOL BOARD.

The commandant, the instructors, and the assistant instructors, who are detailed by orders of the War Department from among the officers of the Medical Corps, constitute the school board. They meet at such times as the commandant deems advisable. They arrange the program of instruction, prescribe textbooks appropriate thereto, the allotment of time to each subject, and the character and scope of the examinations, and have final determination of all questions concerning the proficiency of students, subject however in all respects to the express provisions of the Manual for the Medical Department, U. S. Army, and other orders and regulations issued by authority of the Secretary of War.

ADMINISTRATION.

The general administration of the school is intrusted to the commandant. In the case of the absence of the commandant the senior instructor present acts as commandant. The commandant applies to the Surgeon-General for such articles as may be required for the school, and reports annually on or before the 1st of July its progress and needs, including an account of the instruction given and the proficiency of the several students as shown in the final examination.

The adjutant is chosen by the commandant, subject to the approval of the Surgeon-General, from among the junior instructors. He is the recorder and custodian of the records of the school board, and conducts the correspondence of the school and promulgates the orders of the commandant.

The property officer is accountable for all the property pertaining to the school. He is chosen by the commandant, subject to the approval of the Surgeon-General, and may, under the direction of the commandant, make authorized purchases for the school and certify accounts therefor for settlement.

THE STUDENTS.

The student body includes the student candidates for appointment in the Medical Corps, and such medical officers of the Army and of the organized militia as may be ordered or authorized to attend the school.

Student candidates.—All candidates for appointment in the Medical Corps who pass the preliminary examination described hereinafter, are required to attend the school.

Student officers.—Medical officers of the Army who are stationed at or near the city of Washington or are on leave may, with the permission of the Surgeon-General, attend the school.

Student militia officers.—The manual for the Medical Department of the U. S. Army prescribes the following rules and regulations governing the attendance of student militia officers at the Army Medical School:

Only such medical officers of the militia shall attend the school as shall be designated from time to time by the Secretary of War.

(a) A militia officer in order to be eligible for the course of instruction must not be less than 22 nor more than 35 years of age. He must be of sound health, good moral character, and a citizen of the United States. He must have been a member of the organized militia at least one year, and must have such preliminary educational qualifications as will enable him to participate profitably in the course of instruction.

(b) Militia officers desiring to attend the school must be nominated to the Secretary of War by the governors of their respective States and Territories, or by the commanding general, District of Columbia militia, and the nomination must in each case be accompanied by an affidavit of the nominee, stating his age, citizenship, the medical school from which he received his degree, the date of his graduation, and the length of his service in the organized militia, and by a certificate from the colonel of his regiment or other satisfactory person as to his good moral character.

(c) Militia officers, before their admission to the school, must sign an agreement to attend and pursue the course of study and to be bound by and conform to the rules and discipline imposed by its regulations.

(d) The expense to the Government on account of militia officers attending the school is limited strictly to travel allowances, commutation of quarters, and subsistence. The travel allowances consist of the mileage or transportation allowed by law. Commutation of quarters are the same as provided by law for officers of the corresponding grade in the Army. Militia officers cannot be furnished with quarters in kind. For subsistence each militia officer is paid one dollar a day while in actual attendance at the school.

(e) Each militia officer must provide himself at his own expense with the proper uniforms of his own State or Territory, and with the required textbooks. The course will require the entire time of the student, so that no outside occupation during the school term is practicable.

(f) A militia officer found deficient during the course in any subject may be conditioned by the commandant upon the recommendation of the school board, and continued at the school with a view to making good his deficiency at the final examination. Without such recommendation he shall be reported to The Adjutant General of the Army with a view to the withdrawal of the authority to attend the school. Any officer showing neglect of his studies or a disregard of orders shall upon recommendation of the commandant be deprived of the privilege of further attendance at the school.

(g) When a militia officer graduates from the school the fact of his graduation shall be reported to the governor of his State or Territory, who shall also be notified in regard to the positions in the medical service of the militia for which the officer is specially qualified.

(h) The names of militia graduates shall be entered in the register at the War Department in accordance with section 23 of the act of Congress approved January 21, 1903, as qualified for such duties as the school board may recommend.

To understand the purpose of the Army Medical School, located at Washington, D. C., it is necessary to give a few facts about the organization of the Medical Corps of the Army, and the method of appointment of officers to this service.

The Medical Department of the United States Army, under the act of Congress approved April 23, 1908, as modified by the act of March

3, 1911, consists of the Medical Corps, the Medical Reserve Corps, the Dental Corps, the Hospital Corps, and the Nurse Corps.

The Medical Corps consists of a Surgeon-General with the rank of brigadier general, 14 colonels, 24 lieutenant colonels, 105 majors, and 300 captains or first lieutenants with the rank, pay and allowances of officers of corresponding grades in the Cavalry arm of the service.

Section 4 of the act of Congress referred to above provides:

"That no person shall receive an appointment as first lieutenant in the Medical Corps unless he shall have been examined and approved by an Army medical board consisting of not less than three officers of the Medical Corps designated by the Secretary of War."

Vacancies in the Medical Corps are filled by appointment to the junior grade (first lieutenant). These appointments are made by the President of the United States after the applicant has passed the prescribed examination and has been recommended by the Surgeon-General of the Army.

QUALIFICATIONS.

An applicant for appointment in the Medical Corps of the Army must be between 22 and 30 years of age, at the time of taking his preliminary examination, a citizen of the United States, and a graduate of a reputable medical school legally authorized to confer the degree of doctor of medicine, in evidence of which he is required to submit his diploma to the board at the time of his preliminary examination.

Hospital training and practical experience in the practice of medicine, surgery, and obstetrics are essential, and an applicant is expected to present evidence that he has had at least one year's hospital experience as an interne after graduation.

EXAMINATION.

The examination consists of two parts—a preliminary examination and a final or qualifying examination, with a course of instruction at the Army Medical School intervening.

The preliminary examination will be as follows:

(a). Physical. The physical examination is thorough.

(b). Written. The written examination embraces the following subjects:

Anatomy, physiology and histology, chemistry and physics, materia medica and therapeutics, surgery, practice of medicine, obstetrics and gynecology.

The preliminary examinations are conducted under instructions from the Surgeon-General by local boards of one or more medical

officers, and by a central board of not less than three, known as the Army Medical Board.

For set of questions asked at a recent examination see Appendix II.

Applicants who attain a general average of not less than 80 per cent. in the preliminary examinations and are deemed otherwise acceptable are appointed to the Medical Reserve Corps with the rank of first lieutenant and ordered to the Army Medical School, Washington, D. C., for instruction as candidates for admission to the Medical Corps of the Army. If, however, a greater number of applicants qualify than can be accommodated at the school, the requisite number are selected according to relative standing in the examination. An applicant thus selected is required, before entering the school, to make an agreement to accept a commission in the Medical Corps if found qualified in the final examination and serve at least five years thereafter, unless sooner discharged. Candidates undergoing instruction at the Army Medical School receive the pay and allowances of first lieutenants, including travel pay from their homes to Washington. Pending the opening of the next session of the school selected applicants may, if they so desire, be given active duty at Army posts as their services are needed.

An applicant failing in one preliminary examination may be allowed another after the expiration of one year, but not a third. Withdrawal from examination during its progress, except because of sickness, is deemed a failure.

The course of instruction at the Army Medical School is of eight months' duration, commencing on the first of October next succeeding the preliminary examination. It is both theoretical and practical and comprises the following subjects:

1. Duties of medical officers, Medical Department Administration, and customs of the service.
2. Military Hygiene.
3. Clinical Microscopy and Bacteriology.
4. Military Surgery.
5. Military and Tropical Medicine.
6. Sanitary Chemistry.
7. Hospital Corps Drill and Field Work.
8. Operative Surgery.
9. Ophthalmology and Optometry.
10. X-ray Work.
11. Equitation.

GRADUATION.

Ratings for graduation are made by the school board for proficiency in class room and laboratory during the course of the term and at stated periodical examinations in the professional subjects enumerated above, exclusive of equitation, and for deportment. Students who obtain a general average of 80 per cent. and upward in the total rating receive certificates of graduation from the school. During the course of instruction the character, habits, and general deportment of the students are closely observed. If it shall appear during a candidate's attendance at the school that his appointment to the Medical Corps would be undesirable, he will be relieved from active duty and his discharge from the service recommended. In cases of gross misconduct mileage allowance home prior to relief from active duty is not ordered. If the student candidate fails to qualify for graduation conformably to the regulations of the school he is relieved from active duty and his discharge from the service recommended at the close of the term of the school. A second course in the school is in no case allowed.

The final or qualifying examination of graduate candidates for appointment in the Medical Corps is held by the Army Medical Board immediately after the close of the term of the Army Medical School. It covers the following points: First, the candidate's physical qualifications; second, his clinical skill and acumen; and third, his general aptitude for the service.

The physical examination is thorough. If it reveals a permanent incapacity for active military service, the candidate is relieved from the service recommended. If it reveals an incapacity curable within a brief period, the candidate is regarded as physically qualified, and the clinical examination is proceeded with. The question whether the incapacity is permanent or curable is one for the examining board to determine. In case of doubt the examination is discontinued, and the candidate relieved from active duty to afford him an opportunity to effect a cure. A candidate relieved from active duty for this purpose may, upon the recommendation of the Surgeon General, be called into active service the following year, for final examination with the next class of candidates. Should he then be found physically incapacitated he is again relieved from active duty and his discharge from the service recommended.

The candidate being found physically qualified, the board then proceeds with his clinical examination and the inquiry into his general

aptitude, giving him appropriate ratings under each head conformably to instructions from the Surgeon General.

Graduate candidates who are found physically qualified and who obtain a general average of 80 per cent. in their preliminary professional examination, their course at the Army Medical School, their clinical examination, and their general aptitude, are eligible for appointment in the Medical Corps.

Eligible candidates may, if they so desire, take a special examination in ancient or modern languages, higher mathematics, or scientific branches other than medical. Proficiency therein is rated by the board conformably to instructions from the Surgeon General.

The relative standing for appointment of eligible candidates is determined by the total number of points obtained in the preliminary professional examination, in the school, in the clinical examination, in general aptitude, and in the special examination, if one is taken.

Eligible candidates who fail to receive appointments because of lack of vacancies at the time of qualification may receive them in the order of their standing as vacancies occur before the graduation of the next class. Thereafter they shall not be eligible for appointment in the Medical Corps, but are preferred for selection for volunteer commissions and for active duty in the Medical Reserve Corps.

Medical Officers are given every facility and encouragement to develop professionally. Instruments and appliances are liberally supplied for their use in the performance of their duties. Well selected professional libraries are furnished each hospital and standard modern publications on medical and surgical subjects are added from time to time, current issues of a number of representative medical journals are furnished for use of medical officers. At each military post there is also a laboratory for those interested in such work. All are encouraged to carry on any special line of professional study which appeals to them and which fits them for their work as medical officers of the Army.

A very accurate idea of the scope of the work done at the Army Medical School may be obtained from the annual report rendered by Colonel Charles Richard, Medical Corps, U. S. Army, the Commandant of the school, to the Surgeon General of the Army, for the school year ending May 31, 1913. The entire report is too lengthy to be embodied here but essential features of it bearing on the the strict sense of this chapter are included in the following extracts:

* * * * * * * * * *

The Seventeenth Session of the School began October 1, 1912, and ended May 31, 1913.

The number of accepted candidates appointed in the Medical Reserve Corps and admitted to the School was 26.

No student-candidate failed to pass the mid-term examination; 24 completed the course and qualified in the final examination; of this number, 22 were recommended for commission in the Medical Corps of the Army, and 2 failed to receive such recommendation because of deficiency in aptitude for the military service; 2 failed to pass the final examination.

One student-candidate tendered his resignation after having been recommended for appointment in the Medical Corps. As this appeared to be an attempt to evade the obligation assumed by him prior to his admission to the School, "to accept commission in the Medical Department of the Army, if found qualified on final examination, and to serve therein for a period of at least five years after appointment, unless sooner discharged by proper authority," the faculty unanimously recommended that his resignation be not accepted, and that the recommendation for his appointment in the Medical Corps be withdrawn. His resignation was not accepted, and he was appointed in the Medical Corps.

The following exhibits the course of instruction for the student-candidates for the Medical Corps; the value given to each subject; and the number of lectures or hours of instruction:

Military Surgery.

Value of subject: Maximum—800. Minimum—640.

The course consisted of didactic lectures on gunshot, sword, saber, and bayonet wounds. It embraced the mechanics of projectiles; the different kinds of projectiles used in modern warfare, and the character of injuries produced by them; the action of explosives on tissues; the treatment of wounds in general and wounds of special parts; etiology, signs, symptoms, and treatment of traumatic aneurisms; and varieties of wounds produced by cutting and puncturing weapons, and their treatment. These lectures were illustrated by lantern slides; skiagraphs, and experimental gunshot wounds on the cadaver.

This subject was covered in 24 lectures.

Military Medicine and Tropical Medicine.

Value of subject: Maximum—800. Minimum—640.

The course embraced: Meteorology of the Tropics; Trade winds; Equatorial belts; Inland and seaside climate, etc.; General effects of climate on health of inhabitants of European blood; Effects of climate on nutrition, secretion, and the nervous system; Great importance of diseases due to animal parasites in the tropics as contrasted with temperate climates.

Classification of protozoa causing diseases in man; Description of tropical protozoa of the different sub-classes; General anatomy and physiology of protozoa.

Special study of the life history of malarial parasites with mode of infection; The malarial infections of the tropics; Laboratory diagnosis; Pathology of malarial infection.

Clinical types of malaria; Malignancy of tropical malaria; Bilious remittent fever; Pernicious attacks—algid, hyperpyrexial, choleraic, cerebral; Treatment; Methods of giving quinine in simple and malignant cases; Prophylaxis of malarial infection; Hæmoglobin-uric fever; Its relation to malaria; Latent and chronic malaria; Relapses in malarial fevers; Malarial cachexia.

Yellow fever: History; Method of transmission by mosquitoes; Probability of its specific cause being a protozoan; Symptoms; Differential diagnosis; Pathology; Treatment; Prophylaxis.

Malta Fever: Etiology and prophylaxis; Clinical description; Differential diagnosis; Treatment; Dengue; Symptoms and diagnosis; Difficulty of differentiation from yellow fever; Treatment.

Atypical fevers of tropics: Typhoid fever of tropics; Difficulty of diagnosis; Importance from military standpoint.

Plague: History of disease with principal epidemics of ancient and modern times; Types of disease; Pathology; Etiology; Epidemiology; Plague rats and plague fleas; Symptoms; Diagnosis; Prophylaxis.

Cholera: History; Importance from military standpoint; Epidemiology and etiology; Laboratory diagnosis; Symptoms and clinical diagnosis; Pathology; Treatment and prophylaxis.

Beri-beri: History; Beri-beri and scurvy; Different theories as to etiology; Recent discoveries as to dietetic causes of the disease; Clinical history and diagnosis; Pathology; Treatment and prophylaxis.

Trypanosomiasis in animals and man: Description of typical trypanosome; Symptoms and history of trypanosomiasis; Sleeping sickness; Leishman-Donovan bodies and Kala azar; Transmission of blood flagellates by different insects; Treatment and prophylaxis.

Tropical dysentery: Description of amœba; etiological factors in dysentery; Symptoms and varieties of disease; Pathology; Treatment and prophylaxis.

Tropical abscess of liver: Another mode of amœbic infection; Causation; Symptoms and treatment; Epidemic dysentery due to bacilli of different though related strains; Importance to military sanitarians; History; Epidemiology; Symptoms and treatment.

Filariasis: Filarise in blood and connective tissue; Life history of F. Bancrofti; Method of transmission by mosquito; Surgical results of filariasis; Elephantiasis.

Dracontiasis or Guinea worm disease: Life history of the parasite; Clinical description of disease; Treatment. Yaws: Relations to syphilis; Causation and pathology; Clinical description.

Intestinal animal parasites of tropics other than protozoa: Classification of intestinal worms; Cestoda of tropics; Dwarf-tapeworm; Trematode worms of tropics.

Schistosomiasis: Endemic hematuria; History of parasite; Symptoms and course of disease; Treatment; Surgical complications; Paragonimus and endemic hemoptysis; Description of parasite and history of disease; Diagnosis.

Nematode worms: Round worm; Whip worm; Hookworm: Differentiation by ova; Hookworm disease: Importance to military surgeon; History; Causation and prophylaxis; Methods of infection; Treatment.

Eighteen hours were devoted to these subjects.

Military Hygiene.

Value of subject: Maximum—800. Minimum—640.

The course embraced: Morbidity and mortality in the military service; Sickness in tropical countries; Influence of Race, Age, and Length of service; Diseases of the soldier; Mosquitoes; Parasitic diseases; Diseases caused by immoral or intemperate habits; Recruiting; Exercise; March; Personal hygiene; Water; Water purification; Food; Vegetable food; The nutritive value of foods; Field cookery; The ration; The ration in the tropics; Rules to be observed in eating and drinking; Beverages; Clothing, uniform and equipment; Posts, barracks and quarters; Military hospitals; Air; Ventilation; Heating; Lighting; Disposal of excreta; Garbage and wastes; Soil; Camps; Latrines; Disposal of wastes, garbage and refuse in camps; General sanitary rules in the field; Service in warm climates; Service in cold climates; Disinfection and disinfectants; Naval and marine hygiene; Quarantine.

This course was completed in 21 hours of instruction.

Sanitary Chemistry.

Value of subject: Maximum—600. Minimum—480.

This course, which was almost entirely a practical laboratory course, consisted of, first: qualitative analyses of the different groups of metals, with a view of refreshing the chemical knowledge of the student-candidate, and of familiarizing them in laboratory technique. Following this, the course consisted of examination of stomach contents, quantitative and qualitative; examinations for the commoner poisons and alkaloids; chemical analysis of urine; chemical analysis of water; examination of air; the

determination of the purity of pharmacopeial substances (the mineral salts, alcohol, chloroform, æther, calcium, magnesium sulphate, potassium bromide, potassium iodide, quinine sulphate, sodium salicylate); and examination of foods (flour, milk, butter, vinegar).

One hundred and fifty instruction hours were devoted to this course.

Bacteriology, Pathology, and Clinical Diagnosis.

Value of subject: Maximum—900. Minimum—720.

The course in bacteriology and clinical microscopy was expanded in several respects. * * * * *

The course in bacteriology and clinical diagnosis covered the standard work usually undertaken in postgraduate schools, and in addition included complete studies of cholera, typhoid fever, and plague. These subjects are not only important in themselves, but afford opportunity for the demonstration of the greater number of technical procedures of bacteriology and serology. In the study of typhoid and allied fevers, a course necessitating 12 working days, was given, which included the isolation of the paratyphoid bacilli, as well as the typhoid, from blood, urine and feces. The course in bubonic plague was more complete than has heretofore been given, and included the demonstration of acute lesions in freshly infected animals and tissues, and stained smears from natural infections in men and animals.

To illustrate actinomycosis, a classical case was exhibited and from it the students prepared successfully stained smears and cultures. Rabies illustrated with material from a fresh human case, as well as by typical symptoms and lesions in animals.

The subject of bacterial vaccines was studied during four working days. In addition to lectures and demonstrations on the immunity reactions involved, the therapeutic use of vaccine in various diseases was considered and each student prepared a staphylococcus vaccine.

At the conclusion of the course, 2 weeks were devoted to the diseases caused by the anærobic bacteria, and most of the methods which have been successfully used in the study of anærobes were demonstrated to, or were used by the class.

Two hundred and sixty-eight hours were devoted to instruction in this course.

Medical Department Administration.

Value of subject: Maximum—1,000. Minimum—900.

This course, to which were devoted four hours per week, aggregating 96 hours, during the entire school term, was divided into three parts, as follows:

I. Regulations.
II. General Medical Department Administration.
III. Medical Department Administration in Campaign.

Under Part I: Army Regulations; Field Service Regulations; Manuals for different staff departments; Orders and Reports were discussed, and their nature, contents and uses explained.

Organization of the staff departments; Customs of the Service (social and official); Uniforms and Dress.

Organization of the Army in peace and war, including Regular Army, Militia, and Volunteers.

Military Discipline: Precedence; Rank and Command; Articles of War; Courtesy; Obedience, etc.

Under Part II: Medical Department of the Army and its organization; Medical Corps; Medical Reserve Corps; Dental Corps; Hospital Corps; Army Nurse Corps; Civilian Employees. Their duties; education; training. Hospitals; Duties of Medical Officers; Physical Examinations; Reports and Returns; Supplies and Materials.

Under Part III: Organization of land forces of the United States in peace and war; Shelter; Camping; Camp Sanitation; Marches and Convoys; Supply and Transportation; Sanitary Service; Map Reading.

Ophthalmology.

Value of subject: Maximum—400. Minimum—320.

The first sixteen hours of this course were devoted to theoretical instruction. During this time the class covered general optical principles, optical consideration of the eye, errors of refraction, anomalies of accommodation, and the theory of the ophthalmoscope and retinoscope.

The remainder of the course was made as practical as possible. The students were required to refract cases subjectively, correct for presbyopia, make muscle tests and write prescriptions for glasses. They were also required to use the ophthalmometer and perimeter and to make a complete systematic examination of each patient.

In the dark-room the students were first required to study the normal fundus of the schematic eye, and when they became familiar with the ophthalmoscope, they studied the normal fundus of patients. This exercise was supplemented by lantern demonstrations of the various types and anomalies of the normal fundus, which could not be secured for clinical examination.

Retinoscopy was next taken up, using the schematic eye and later patients under a cycloplegic. The students were required to refract objectively, prescribe glasses and make a written report of their work, which was checked up at the time and any inaccuracies corrected.

In conjunction with the practical work in refraction, cases of neuritis, neuro-retinitis, optic atrophy, glaucoma, albuminuric retinitis, angiosclerotic fundi, retinitis pigmentosa, choroiditis, posterior staphyloma and various other diseases were secured for examination from the Walter Reed General Hospital, The Soldiers' Home, and an eye clinic in the city. Preceding the clinical examination of these cases a short talk was given on the subject for study that day, and by means of the reflectroscope and an excellent set of engravings all the pathological changes in each disease were demonstrated.

The final examination was entirely practical and included the refraction, the diagnosis of fundus conditions, and the systematic examination of cases.

Each student-candidate received 27 hours of instruction in this course.

To properly appreciate the next subject it must be understood that the Medical Corps of the United States Army is organized into units both administrative and tactical (from the medical sense) and that various drills and evolutions are practiced similar in many respects to those of the combatant forces, with the exception that these exercises do not take upon themselves the nature of movements contemplated in real combat, but of the character that facilitates the movements of large bodies of this Corps in the performance of their duties in caring for the wounded on the field of battle. The report continues:

Sanitary Tactics.

Value of subject: Maximum—500. Minimum—400.

The instruction in this Department embraced the following drills and subjects:

School of the Soldier; Setting up Exercises; Squad and Detachment Drill; Litter Drill; Ambulance Drill; Saber Drill; Methods of Moving Wounded Without Litters; Tent Pitching Drill; Demonstration and Instruction in the use of the equipment for Hospital Corps men; Demonstration of the equipment and method of pitching field hospitals and dressing stations; Instruction in the use of the First Aid Package.

Forty-eight hours were devoted to this course.

Operative Surgery.

Value of subject: Maximum—400. Minimum—320.

This course embraced operations on the cadaver, including amputations, disarticulations, joint resections, ligation of arteries, and the more common head, chest, and abdominal operations. The surgical anatomy of the parts operated upon was reviewed in a quiz at each lesson.

Each student-candidate received 17 hours instruction in this course.

Radiology.

Value of subject: Maximum—300. Minimum—240.

This course embraced the nature, properties, and the laws governing electricity; the history, character, and properties of the X-Ray; discussion and explanation of the apparatus for generating these rays; transformers; radiography and its technique. This was followed by a practical course of instruction in the dark-room in the development of photographic plates. Each student-candidate was required to make radiographs of different portions of the body and to develop the plates, and thus become thoroughly conversant with all the practical details of this work. Considerable time was also devoted to the interpretation of X-Ray plates, and skiascopy in the living subject.

Each student-candidate received 26 instruction hours in this subject.

Psychiatry.

On this subject Dr. White, Superintendent of the Government Hospital for the Insane, delivered thirteen lectures during the School term.

The course embraced: dementia precox; paranoia and paranoid states; depressions; maniac-depressive insanity; alcoholic psychoses; senile dementia; arterio-sclerotic dementia; arterio-sclerotic dementia with focal brain lesions; congenital defect states (idiocy, imbecility, and feeble-mindedness); neurological cases. Patients suffering with dementia precox; paresis, cerebral lues; and maniac-depressive insanity were presented and the members of the class were required to examine and report on them. In addition to these lectures there were clinical demonstrations by Captain King on the various symptoms of mental disease, a lecture on hydrotherapy, and a demonstration of its application.

Medical officers are required to be mounted. To equip the medical officer with a knowledge of his horse, and of the methods of bridling, saddling, mounting, dismounting, and other necessary instruction, this very efficient school has not overlooked this very important part of the Army surgeon's education, as is evidenced from the following:

Equitation.

Hours of instruction—22.

This course consisted of instruction in saddling and bridling; parts of the horse; parts of the bridle and saddle; mounting and dismounting; saddle and bareback work; the military seat; use of the aids; simple movements at a walk, trot and gallop; use of the flat saddle; jumping low hurdles; use of the double bridle; lectures on the care of the horse; manual of the saber; and care of leather equipments.

Military Law.

This course embraced the following subjects, and was covered by eight lectures: Discipline, its importance and how maintained; brief history of military law, martial law, and the law of hostile occupation, and of the Articles of War and Army Regulations; courts-martial, the different kinds, and the purpose and scope of each in time of peace and war; military com-

missions; drafting of charges and specifications and consequent proceedings; judge-advocate's preparation of case for trial, counsel's preparation for defense; general pleas and special pleas; how disposed of; evidence; courts of inquiry, retiring boards and other boards. * * * * * *

The report states here that "A series of interesting and very instructive lectures were delivered by special professors," and gives the subjects of these lectures as follows: "Surgery of the Bones," "Surgery of the Brain," "The Chronic Arthritides," and gives the names of the lecturers.

Continuing, Colonel Richard states:

One officer of the Medical Corps, U. S. Army, attended the School during the session, for a special course of instruction in serology and special bacteriology, preparatory to taking charge of one of the department laboratories.

One medical officer of the Organized Militia took a special course of instruction in sero-diagnosis, preparation of vaccines, etc. His work was highly satisfactory in all respects, and the experience gained will no doubt be of benefit to the military service of his State.

The Hospital Corps men (2 Sergeants first class, 1 Sergeant, and 1 Private) detailed at the School for instruction in X-Ray work and photography, have proven apt and have acquired the technical knowledge and skill necessary to qualify them as instructors in these subjects.

Here follows a brief description of the closing exercises of the school year, and continues:

Believing that the faculty of the School should be given titles commensurate with the character and importance of their duties, it was recommended, during the session, that the titles of "Instructor" and "Assistant Instructor," previously held, be changed to "Professor" and "Assistant Professor," and that the distinguished members of the Medical Reserve Corps, detailed to deliver lectures upon professional subjects before the students of the School, be given the title of "Special Professor" for the session during which the lectures are delivered. This recommendation having been approved by the Secretary of War, the change was effected on January 25, 1913. The work of all officers connected with the School has been efficiently and enthusiastically performed. The clerical work has been greatly improved by the assignment of four civilian clerks. This has been of great assistance in the preparation of scientific papers emanating from the School, especially those published in the Bulletin of the Surgeon General's Office. The enlisted personnel of the School has proven competent and satisfactory in every respect. There has been no infraction of discipline among it.

Then follows a number of pages of a very clear and minute description of the laboratory work performed at the school, dealing particularly with those things with which the army surgeon is most frequently called upon for service, opinion and advice. The report then concludes with the following recommendation:

I desire to invite attention to what I believe to be a defect in the method of securing the pledges from qualified candidates, required by paragraph 8, Manual for the Medical Department. Under this method the pledge is given by the candidate prior to acceptance of his appointment in the Medical Reserve Corps, and its violation cannot be made a matter of disciplinary action, since it was secured prior to the entry of the candidate into the military service. It is recommended that in the future this pledge be required from the candidate after his acceptance of appointment in the Medi-

cal Reserve Corps so that in case of its violation disciplinary action can be taken.

The following extract from "Memorandum for the Information and Guidance of Students of the Army Medical School" conveys a good idea of the discipline and thoroughness of the work contemplated by the governing authorities of that school:

MEMORANDUM

FOR THE INFORMATION AND GUIDANCE OF STUDENTS OF THE ARMY MEDICAL SCHOOL.

* * * * * * * * * *

"The purpose of the ARMY MEDICAL SCHOOL is to train in such subjects as are appropriate to the duties which a medical officer of the Army is ordinarily called upon to perform. Students will, therefore, remember that they are under orders from the Secretary of War. A perfunctory performance of duty, carelessness, or indolence is not to be tolerated. In this connection, attention is invited to the 62nd Article of War.*

"Students will be required to be punctual in their attendance at the exercises of the School, as it is expected that they will be conscientious and painstaking in their work.

"2. The roll will be called before each lecture and before beginning work in the laboratories.

"3. Absence from a lecture or from laboratory instruction will be reported by the officer in charge to the Adjutant, who will require from the student a written explanation. Habitual tardiness will be reported.

"4. Smoking will not be indulged in during the hours of instruction, nor where there is any loose paper or inflammable material.

"5. Students will be required to wear the service uniform of their grade during the hours of instruction except when engaged in laboratory work, when a black cambric gown may be worn.

Closets are provided in the cloak room for the clothing of students.

"6. The books in the School library may be taken for a period of two weeks upon application to the Property Officer.

"Books from the Library of the Surgeon General's Office may be obtained by applying to the Librarian of that library."

"7. The following values will be given the several subjects in determining the proficiency of the students at the end of the session:

Subjects.	Minimum.	Maximum.
Bacteriology, Pathology and Clinical Diagnosis	720	900
Medical Department Administration	640	800
Military Hygiene	640	800
Military Surgery	640	800
Military Medicine and Tropical Medicine	640	800
Sanitary Chemistry	480	600
Sanitary Tactics	400	500
Operative Surgery	320	400
Ophthalmology	320	400
Radiology	240	300
Deportment	400	500
Total	5,440	6,800

"In order to be rated 'proficient' and receive a certificate, a student must obtain 5,440 points, or 80 per cent.

"Those who receive 6,120 points (90 per cent), or over, will be rated as 'proficient with honor.'

*Art. 62. All crimes not capital, and disorders and neglects, which officers and soldiers may be guilty of, to the prejudice of good order and military discipline, though not mentioned in the foregoing articles of war, are to be taken cognizance of by a general, or a regimental, garrison or field officers' courtmartial, according to the nature and degree of the offense, and punished at the discretion of the court.

"A student who obtains less than 80 per cent will not receive a certificate of proficiency.

"8. A schedule of lectures and laboratory instruction will be posted on the bulletin board. Due notice will be given of any departure from this schedule.

"9. Official communications on any subject, whether relating to the School or not, will be in writing, in the usual form of 'Official Correspondence,' and addressed to the 'Commandant.' In this connection, attention is invited to Army Regulations and General Orders No. 23, War Department, 1912. * * * * * *

"10. Each student will as soon as practicable, inform the Adjutant of his city address. Any change of address or of conjugal condition will be reported immediately.

"11. In case a student is prevented by illness from attending the School he will immediately report, by letter or telephone, to the Adjutant."

CHAPTER XII.

GARRISON SCHOOLS FOR COMMISSIONED OFFICERS OF THE ARMY.
(At Military Posts).

"Peruse again and again the campaigns of Alexander, Hannibal, Cæsar, Gustavus Adolphus, Turenne, Eugene, and Frederick. Model yourself upon them. This is the only means of becoming a great captain, and of acquiring the secret of the art of war. Your own genius will be enlightened and improved by this study, and you will learn to reject all maxims foreign to the principles of these great commanders."—*Maxim of Napoleon.*

GARRISON SCHOOLS.

Garrison schools at each military post for the instruction of officers "in subjects pertaining to the performance of their ordinary duties," are prescribed by the Army Regulations, and are a part of the military educational system of the United States. These schools are conducted under the personal supervision of the post commanders. The character of instruction, and the more or less specific manner in which these schools are conducted is set forth in orders from the War Department at Washington.

ANNUAL PERIOD OF INSTRUCTION.

The annual period for theoretical instruction of officers, except those serving in the Philippines Division and coast artillery officers in the Department of the Gulf, extends from November 1 to March 30, inclusive, of each year. For all officers serving in the Philippines Division and for coast artillery officers in the Department of the Gulf this period extends from June 1 to October 30, inclusive. Exercises in instruction are held daily except Saturdays, Sundays, holidays, and the period from December 24 to January 2, both inclusive.

ATTENDANCE OF OFFICERS.

All lieutenants of the line of the Army, including lieutenants of engineers serving with troops, are required, with the exceptions mentioned below, to take the entire garrison school course for their respective arms of the service.

Department commanders may authorize captains and lieutenants of the Medical Corps, upon their own application, to take the garrison school course in any or all of the following-named subjects:

Field service regulations, military law, international law, and military hygiene.

During their first year of commissioned service, officers of infantry, cavalry, field artillery, and coast artillery are required to pursue the preliminary course of instruction prescribed for their respective arms of the service. No preliminary course for officers of the Corps of Engineers is prescribed; these officers receive such special educational training as may be prescribed by proper authority before taking the garrison school course. The time each officer is to enter upon the regular garrison school course is determined by the department commander upon recommendation of the post commander. The department commander may authorize an officer upon his own application to take one or more subjects of the regular course while pursuing the preliminary course.

Officers who have been examined for promotion, and graduates of any of the service schools, are exempt from the garrison school course in subjects successfully completed by them.

Officers having certificates of proficiency from the officers' "post school," the organization and the course of study of which was in many ways similar to the present garrison schools; or officers who may have secured certificates from garrison schools, are exempt from taking the course in any subject or subjects which may be completely covered by such certificates.

When new drill regulations or manuals pertaining to the drill of any arm are adopted, post commanders see that the battalion, squadron, or fire commanders of their commands, of the arm concerned, who are directly responsible for the theoretical instruction of subordinates, take the action necessary to insure the immediate instruction of their captains and lieutenants in the text adopted.

When new drill regulations are adopted certificates of proficiency in those superseded become void, and therefore all captains and lieutenants, regardless of length of service, take the next regular examination in this subject in the garrison school course.

Those who have certificates of proficiency in the superseded regulations are privileged but not required to attend the garrison school course in the new regulations.

Student officers on duty at a military post are required to attend the daily sessions of the school unless excused by the department commander, or should the officer's enforced attendance serve as serious detriment to other important duties. If absent from their posts during the whole or any part of the school year, they are required to

study the subjects taken up during their absence and to take the regular examinations therein at some convenient post or station designated by the department commander, unless through sickness or other cause beyond his control an officer has not had the opportunity to prepare himself properly in a subject.

Lieutenants serving by detail in staff corps and departments and those on duty at the United States Military Academy and at Service Schools are not required while on such duty to take the garrison school course. All other lieutenants of the line of the Army, except those who have been examined for promotion, who have certificates of proficiency from properly constituted post schools, or who are graduates of any of the Service Schools, who are not under the jurisdiction of a department commander, unless exempt from the garrison school course, submit reports to The Adjutant General of the Army not later than November 1 of each year, specifying the subject or subjects not completed by them and stating whether or not their duties permit them to prepare for the examinations.

When it is impracticable for an officer to attend the daily sessions of the school without serious detriment to other important duties, he may be excused by the department commander from recitations and conferences and, if necessary, from practical instruction for the whole or any part of the school year.

At posts garrisoned by two companies or less, regular daily recitations or conferences may be dispensed with wholly or in part when in the opinion of the department commander the interests of the service demand it; but no part of the practical instruction is omitted.

If an officer be excused from examination because through sickness or other unavoidable cause he has not had the opportunity to prepare himself in any subject, or be found deficient on examination, or for any other reason fails to complete satisfactorily a subject, he is required to repeat the course in that subject in the school year in which it is next taken up, or during the interval between the school years if it be a subject in the preliminary course, unless he has successfully passed his examination for promotion, or graduated from a Service School.

During the school year leaves of absence are not granted officers while under instruction, save under exceptional circumstances.

INSTRUCTORS.

The greatest care is exercised in selecting instructors. When practicable they are senior in rank to student officers, but, whether

senior or junior, the respect due their position must be accorded them while they are in the execution of their duty.

When no other officer is present and available a student officer may be detailed as instructor, and when so detailed he is excused, if he so desires, from examination in the subject, or subjects, in which he has acted as instructor.

The instructor in military hygiene is ordinarily a medical officer of the Army.

PRELIMINARY COURSE OF INSTRUCTION.

The preliminary course of instruction is complete in one school year. If it becomes necessary to repeat the course in any subject a special period for instruction in that subject is designated by the post commander.

The method of instruction, the order in which the subjects are to be taken up, and the period to be allotted to each subject in the preliminary course, is left to the discretion of the post commander, who through personal supervision assures himself that the instruction is thorough, and that proper habits of application and study are formed by the young officers under his command.

The subjects included in the preliminary course are as follows:

(a) *Infantry and cavalry.*

1. Manual of Guard Duty.
2. Field Service Regulations:
   Articles II, IV, V, and VI.
3. Administration:
   Company administration, including preparation of all company papers and accounts.
4. Drill Regulations:
   To include definitions, general principles, drills, ceremonies, etc., which a company officer must know.
5. Small-Arms Firing Regulations.
6. Military Field Engineering.
7. Military Hygiene.
8. Notes on Equitation and Horse Training, Mounted Service School (for cavalry only).

(b) *Field artillery.*

1. Field Artillery Drill Regulations.
2. Indoor Firing Practice.
3. Gunnery.
4. Field Artillery Matériel.
5. Administration:
   Company administration, including preparation of all company papers and accounts.
6. Notes on Equitation and Horse Training, Mounted Service School.

(c) *Coast artillery.*

1. Coast Artillery Drill Regulations.
2. The Coast Artillery Memorandum publishing instructions governing target practice.

3. Coast Artillery Matériel:
Descriptions and instructions as to care and use of the gun or mortar and the carriage of the battery to which the officer is assigned, or of mine matériel, in case the officer is assigned to a mine company or detachment.
4. Electricity:
Description, care, and use of coast artillery electrical matériel.

The following War Department order dated Washington, February 25, 1914, prescribes the Coast Artillery War Game as a further means of instruction:

1. The Coast Artillery War Game is announced as a means of Coast Artillery training, and, under the supervision of Coast Artillery district commanders, coast defense commanders are charged with the duty of causing their commands to be properly instructed therein.
2. This instruction will embrace the following:
a. For battery officers, observers, gun pointers, and telephone operators, to be conducted by the battery commanders, under supervision of the fire commanders, to include the following: Use of proper and uniform commands, rapid indication and identification of targets, armor and its attack, best tactical use of battery when "Battery commander's action" is ordered, use of emergency conditions.
b. For fire and battery commanders, to be conducted by the fire commander, under supervision of fort commander, to include use of proper and uniform commands, rapid indication and identification of targets, fire command drill, armor and its attack, tactical use of elements of the defense (i. e., guns, searchlights, and submarine mines), type forms of attack for each harbor, with best methods of meeting the same, etc.
c. For fort, fire, and battery commanders, to be conducted by fort commanders, under supervision of coast defense commanders, to include use of proper and uniform commands, rapid indication and identification of targets, fort command drill, tactical use of the elements of the defense, estimating the situation, use of general defense plans, etc.
3. All supply departments will assist, as far as possible, in the construction of the necessary apparatus for each garrisoned fort from such material and labor as may be available in the coast defense command. Models of searchlights, diagrams of ships, etc., if they cannot be made in the coast defense command, will on application therefor be supplied from the War Department at the earliest practicable date.
4. Coast Artillery district commanders, and inspectors, in making their annual inspection of coast defense commands, will require the coast defense commander to conduct one or more phases of an assumed attack

REGULAR COURSE OF INSTRUCTION.

The regular course of instruction for officers of infantry, cavalry, field artillery, and coast artillery is divided into three school years, each year being separate and complete in itself. The first school year, except in the Philippines Division and for coast artillery officers in the Department of the Gulf, began November 1, 1910. In the Philippines Division and for coast artillery officers in the Department of the Gulf the third school year began June 1, 1910. The school years follow in numerical succession. For engineer officers the course is complete in one school year.

Instruction covers at least one hour of each school day not set aside for examination, and, when practicable, consists of conferences and the practical application of theoretical principles in

lieu of, or combined with the ordinary recitation method. Regular daily instruction is not required of engineer officers, but the instructor exercises such oversight and gives such assistance as may be necessary to insure a thorough mastery of each subject.

At least one school day of each week is devoted to practical instruction or to the solution of problems in the subject then being studied. In map problems and terrain exercises, which invariably form a part of the practical instruction in Field Service Regulations and tactics, the strength of any arm in the force assumed does not exceed a brigade. The practical instruction in Field Artillery Drill Regulations may consist of indoor firing practice.

The course in administration is not limited to the study of designated articles or paragraphs of the Army Regulations, but includes practical instruction or exercises in the administrative duties of company commanders and battalion staff officers in garrison and in the field, such as the preparation of muster and pay rolls, company returns, discharges, final statements, descriptive lists, clothing accounts, requisitions, returns, reports, etc., and the preparation of quartermaster's and subsistence papers and accounts, special attention being devoted to the method of procuring and accounting for funds, rations, forage, fuel, etc., for a small command in the field.

As the time allotted to this subject is necessarily limited, officers are required, as far as practicable, to prepare themselves for the course during the interval between the school years, for which purpose it is permissible to detail them as assistants to post staff officers.

The subjects included in the regular course, with the period allotted to each subject, are as follows:

(a) *Infantry, cavalry, field artillery, and coast artillery.*

FIRST SCHOOL YEAR.

Subject.	Period of instruction except as otherwise indicated herein.	Period of instruction for the Philippines Division and coast artillery officers in the Department of the Gulf.
1. Field Service Regulations	Nov. 1 to Dec. 23	June 1 to July 25
2. Administration	Jan. 3 to Jan. 30	July 26 to Aug. 25
3. Drill Regulations for infantry, cavalry, and coast artillery)	Jan. 31 to Mar. 5	Aug. 26 to Oct. 1
Drill Regulations and Gunnery (for field artillery).		
4. Small-Arms Firing Manual (for infantry and cavalry).	Mar. 6 to Mar. 30	Oct. 2 to Oct. 30
Field Artillery Matériel and Explosives (for field artillery).		
Infantry Drill Regulations (for coast artillery).		

SECOND SCHOOL YEAR.

1. Tactics	Nov. 1 to Dec. 23	June 1 to July 25
2. Military Law	Jan. 3 to Feb. 15	July 26 to Sept. 10
3. International Law	Feb. 16 to Mar. 30	Sept. 11 to Oct. 30

THIRD SCHOOL YEAR.

1. Military Field Engineering	Nov. 1 to Dec. 1	June 1 to July 5
2. Military Hygiene	Dec. 2 to Dec. 23	July 6 to July 30
3. Hippology (for infantry, cavalry, and field artillery).	Jan. 3 to Feb. 15	July 31 to Sept. 10
Seacoast Engineering (for coast artillery).		
4. Military Topography	Feb. 16 to Mar. 30	Sept. 11 to Oct. 30

(b) *Engineer officers serving with troops.*

(Course complete in one school year.)

Subject.	Period of instruction except in Philippines Division.	Period of instruction in Philippines Division.
1. Field Service Regulations	Nov. 1 to Nov. 20	June 1 to June 25
2. Administration	Nov. 21 to Dec. 1	June 26 to July 10
3. Drill Regulations and Ponton Drill	Dec. 2 to Dec. 23	July 11 to Aug. 2
4. Small-Arms Firing Manual	Jan. 3 to Jan. 15	Aug. 3 to Aug. 15
5. Military Law	Jan. 16 to Feb. 5	Aug. 16 to Sept. 5
6. International Law	Feb. 6 to Feb. 25	Sept. 6 to Sept. 25
7. Military Hygiene	Feb. 26 to Mar. 10	Sept. 26 to Oct. 10
8. Hippology	Mar. 11 to Mar. 30	Oct. 11 to Oct. 30

EXAMINATIONS.

(a) IN THE PRELIMINARY COURSE.

In the preliminary course examinations are required only in subjects which are not included in the regular course and, except for officers of coast artillery, are held at such times and under such regulations as the post commander may prescribe. Questions for examination in this course of officers other than those of coast artillery are prepared under direction of the post commander. For officers of coast artillery the examinations are held during the last ten days of the school year.

The questions for the examination of coast artillery officers in the preliminary course are prepared by the Coast Artillery School Board, and the examination papers are marked as "satisfactory" or "unsatisfactory" by that board. The commanding officer of a coast artillery post makes application through military channels to The Adjutant General of the Army at least one month before the close of the school year for such number of sets of examination questions as may be needed at his post. The examination papers, when completed, are forwarded by the post commander directly to the commandant of the Coast Artillery School.

When a coast artillery officer has been assigned to more than one battery during the school year he may elect the one on which he is examined in the subject of coast artillery matériel. In the examination in electricity a set of questions will be sent upon application to the post commander, who selects a prescribed number pertaining only to electrical matériel to which the officer being examined has had access at the post.

The examination of a coast artillery officer who is required to repeat the course or to whom a special examination or re-examination is granted by the post commander, is held during the month immediately preceding the opening of the next school year.

(b) IN THE REGULAR COURSE.

In the regular course a written examination is held in each subject on the last school day allotted thereto. The examination in military topography includes a road reconnaissance sketch and a position sketch to be made as soon as practicable after the written examination in that subject. In the examination in administration, officers are permitted to consult general orders, Army Regulations, and manuals of the staff departments.

The questions for examinations, special examinations, and reexaminations are prepared by the General Staff and transmitted by The Adjutant General of the Army to department commanders for distribution. The examination takes place in the presence of an officer designated by the post commander, who then appoints a board, to consist of three officers senior in rank to the student officers, to mark the examination papers. If the findings of the board are not approved by the post commander, or if the officer being examined appeals from the approved findings, the entire proceedings are forwarded to the department commander for final action.

The attainment of 75 per cent in the examination will be required for proficiency in any subject.

When an examination board cannot be convened as herein named, the department commander will have the papers marked by a board convened at some other post. The commanding officer of the post so designated acts upon the proceedings of the board and returns the papers with the proceedings.

When, through sickness or other cause beyond his control, an officer has not the opportunity to prepare himself properly in a subject, he may be excused by the department commander from examination therein.

When it is impracticable for an officer to be present on the day set for the regular examination he may be authorized by the department commander to take a special examination on some other date.

If an officer is found deficient on examination in a subject, and it is satisfactorily established that the deficiency was due to unavoidable causes, he may be reexamined in the discretion of the department commander.

Within thirty days after the completion of the regular course in a subject, department commanders make application to The Adjutant General of the Army, or, in case of departments in the Philippines Division, to the adjutant general of that division, for questions for special examinations and reexaminations, stating the approximate date or dates set for the examinations. Special examinations and reexaminations are held during the school year, or during the month immediately following the close of the school, the examinations in any one subject being held, as far as practicable, on the same date at all posts or stations in a department.

CERTIFICATES OF PROFICIENCY.

Officers who have been declared proficient upon examination or reexamination in a subject, or who have acted as instructors during the entire period allotted to that subject are furnished with individual certificates of proficiency by their post commanders in the following form:

.....
(Post.)
.....191 .
(Date.)

I certify that .....
(Name and rank of officer.) (Regiment or Corps.)
has completed the .....garrison school course
(regular or preliminary.)
in the subject of .....and has been found proficient.
.....
.....
.....
.....
Commanding post.

Certificates are prepared in triplicate, one copy to be furnished the officer named, one to be forwarded directly to The Adjutant General of the Army, and the third directly to the officer's regimental commander.

REPORTS IN CASE OF DEFICIENCY.

If an officer is found deficient upon examination in a subject, an individual report is made through military channels to The Adjutant General of the Army for note upon the officer's efficiency record. A copy of this report is sent to the officer's regimental commander. If a re-examination is granted the officer in the subject and he is declared proficient no report of deficiency is rendered.

EXEMPTION FROM EXAMINATION FOR PROMOTION.

Officers who have completed with credit the course in a subject are exempt from professional examination in that subject for promotion to the grade next above that held by them at the date of the garrison school examination for the following periods:

(a) Those who obtain 95 per cent. or more on examination, five years.

(b) Those who obtain 90 per cent. or more on examination, three and one-half years.

In case a mark of 90 per cent. or more in any subject is awarded an officer by the board detailed to mark the examination papers, the commanding officer forwards the papers with the marks

direct to the president of the nearest board convened for the examination for promotion of officers of the arm of the service of the officer being examined.

The president of the board of examination for promotion causes the examination papers and the marks to be reviewed. In case the review discloses the fact that, in the opinion of the board for examination for promotion, the officer should receive a mark of 90 per cent. or more, the president prepares a certificate for each such officer setting forth the subject, the mark awarded, and a statement of the exemption to which such officer is entitled and signs the certificate. In case the review does not disclose that the officer being examined is entitled to 90 per cent. or more, a statement to that effect is furnished the commanding officer forwarding the papers. In either case all papers are returned to the office from which received. The exemption herein authorized does not apply to officers of the Medical Corps nor to officers taking special examinations, re-examinations, or examinations in the preliminary course.

DISPOSITION OF EXAMINATION PAPERS.

Examination papers are retained with the post records for a period of five years, when they are destroyed under the direction of the post commander.

TEXT-BOOKS.

The text-books authorized as standards of instruction in the various subjects are announced by the War Department.

POST-GRADUATE WORK.

Post-graduate work is conducted at all military posts under the immediate direction of the post commander, and consists of:

(a). Tactical problems on the map, including map problems and map maneuvers (war game).

(b). Terrain exercises, including tactical walks and staff or tactical rides.

(c). Special studies by selected officers of important subjects bearing upon the military service, the subjects to be designated by the department commander upon recommendation of the post commander. For coast artillery officers these studies include matters relating to the attack and defense of sea-coast fortifications both by land and by sea.

In the tactical problems on the map and terrain exercises the strength of the force assumed does not, as a rule, exceed a division.

All officers of the line of the Army below the grade of colonel not actually engaged as instructors or student officers in the garrison school course, preliminary or regular, participate in the post-graduate work unless excused by the department commander. Instructors and student officers may, if they so desire, participate in post-graduate work where they can do so without interfering with the preliminary or regular course of instruction.

Officers engaged in special studies on important subjects bearing upon the military service, which have been designated by the department commander upon recommendation of the post commander, may be excused from other post-graduate work in the discretion of the post commander.

Papers prepared by officers engaged in post-graduate work which are deemed to possess marked excellence may be forwarded by the department commander for the consideration of the Secretary of War.

SUPERVISION OVER POST AND GARRISON SCHOOLS.

Post and garrison schools are under the supervision of department commanders and their decisions on matters pertaining thereto are final. If a department commander is in doubt as to the proper interpretation of any of the regulations he may request a decision by the War Department. Department commanders cause the schools to be inspected at such times and under such regulations as they may deem advisable.

POST ORDERS PERTAINING TO GARRISON SCHOOLS.

A better idea of the practical workings of garrison schools may be obtained by embodying in this chapter post orders prescribing the organization of specific schools. It is thought sufficient for this purpose, to include but two of these, one of them emanating from the headquarters of the coast defenses of Boston Harbor which sets forth the organization of all the schools at the forts within the jurisdiction of these headquarters. The other order is from an infantry post garrisoned by the Fifth Regiment of U. S. Infantry. These orders follow:

HEADQUARTERS,
COAST DEFENSES OF BOSTON,
Fort Warren, Mass.

General Orders } October 28th, 1913.
No. 42. }

1. The following organization of schools is announced:

FORT ANDREWS.

Instructors:

Capt. J. D. Watson, C. A. C.....	Drill Regulations, C. A.
Capt. C. E. Wheatley, C. A. C.....	Drill Regulations, Inf.
1st Lieut. D. McC. McKell, C. A. C.	Administration.
1st Lt. E. W. Niles, C. A. C.....	Field Service Regulations.

Student Officers:

2nd Lt. R. N. Perley, C. A. C.....	Field Service Regulations.
2nd Lt. J. R. Cygon, C. A. C.....	Administration; Drill Regulations, C. A., and Infantry.
2nd Lt. A. E. Rowland, C. A. C.	
2nd Lt. L. A. Nickerson, C. A. C.....	

FORT BANKS.

Instructors:

Capt. R. H. C. Kelton, C. A. C.....	Field Service Regulations and Administration.
Capt. R. F. McMillan, C. A. C.....	Preliminary Course (if any). Drill Regulations, C. A. and Infantry.

Student Officers:

1st Lt. E. Reybold, C. A. C.....	Infantry Drill Regulations and such other additional subjects as he has not satisfactorily completed.
1st Lt. T. I. Steere, C. A. C.....	Drill Regulation, Infantry.
2nd Lt. G. D. Riley, C. A. C.....	Field Service Regulations. Administration. Drill Regulations, Infantry.
2nd Lt. E. B. Dennis, C. A. C.....	Field Service Regulations. Infantry Drill Regulations.

FORT REVERE.

Instructors:

Capt. M. S. Battle, C. A. C.	Drill Regulations, C. A. and Infantry.
1st Lt. K. B. Lemmon, C. A. C.....	Field Service Regulations and Administration.

Student Officers:

1st Lt. K. B. Lemmon, C. A. C.....	Infantry Drill Regulations. Field Service Regulations.
2nd Lt. F. Kemble, C. A. C.....	Administration and Drill Regulations, C. A. and Infantry.

FORT STRONG.

Instructors:

Capt. A. Hasbrouck, C. A. C.	Field Service Regulations.
Capt. W. H. Wilson, C. A. C.	Administration.
Capt. H. S. Miller, C. A. C.	Drill Regulations, C. A.
1st Lt. T. L. Coles, C. A. C.	Infantry Drill Regulations.

Student Officers:

2nd Lt. L. Watts, C. A. C.	Field Service Regulations
2nd Lt. J. E. Sloan, C. A. C.	Field Service Regulations.
2nd Lt. O. Krupp, C. A. C.	Administration; Drill Regulations, C. A. and Infantry.
2nd Lt. O. J. Gatchell, C. A. C.....	
2nd Lt. H. W. Stark, C. A. C.	

FORT WARREN.

Instructor:

Capt. C. E. Wiggin, C. A. C.	All subjects.

Student Officer:

2nd Lt. L. L. Barrett, C. A. C.	Field Service Regulations; Administration; Drill Regulations, C. A. and Infantry.

2. All Captains and Lieutenants who have certificates of proficiency in Infantry Drill Regulations superseded by the Edition of August 10, 1911, are required to take the examination in that subject, but are not required to attend the school course therein.

3. Executives will cause a record to be kept of each course showing the number of days and hours given to each subject, names of instructors,

names of student officers, whether recitations were satisfactory or unsatisfactory, and action taken in latter case, all absences and reasons therefor. This record will be forwarded to these Headquarters immediately after close of last course, and will be accompanied by such recommendations and remarks relative to the work accomplished as may be deemed desirable.

4. (a) The post graduate course will be in charge of the Executive of each post, except Fort Warren, and will consist of the following:

NOVEMBER: Simple Map problems for the purpose of becoming familiar with Field Service Regulations, 1913, and developing facility in estimating the situation, and issuing orders.

Tactical walks: Members of class to issue orders orally, on the ground, to meet a given situation.

DECEMBER: Map problems on Map furnished from Headquarters, N. A., C. A. Dist.

JANUARY AND FEBRUARY: Coast Artillery War Games (if completed), and continuation of December work.

MARCH: Special study of special points that have arisen during the course.

(b) Conferences will be had on the solution of problems given out by the Executive, and additional problems will be furnished from time to time from these Headquarters.

(c) Any written solution deemed of special excellence will be forwarded to these Headquarters.

(d) A report will be made at end of course to these Headquarters giving the ground covered, the names of officers participating, and the number of hours devoted to each subject.

(e) One problem per week, exclusive of tactical walks, will be the minimum for the course.

STUDENT OFFICERS: All officers below the grade of Colonel not actually engaged as instructors or student officers in the garrison school course, preliminary or regular, will participate in the Post Graduate work. Instructors and student officers in garrison school will participate in post graduate work except in such parts of term as they are actually engaged in garrison school work.

5. A school for enlisted men, under the provision of General Orders, No. 70, W. D., 1910, and par. 3, G. O., 48, H. E. D., 1913, will be established at each post under the Executives, who will detail an officer to supervise the same. A record of this school will be kept in such a form as to enable inspecting officers to examine into and report upon the scope of instruction and the progress made.

Executives will make special effort in supervision of the original enrollment, to the end that every enlisted man who is deficient in the common school branches of education will have clearly presented to him the advantage of attending the school.

Three hours per week will be used for this school beginning December 1st, 1913, and ending March 30th, 1914.

By order of Colonel Hawthorne

F. W. RALSTON,
Captain, Coast Artillery Corps, Adjutant.

GENERAL ORDERS } HQ. PLATTSBURG BARRACKS, N. Y.
No 36. } October 23, 1913.

Under and supplementary to the provisions of G. O. No. 70, W. D., 1910, as amended by G. O. No. 150, W. D. 1911, G. O. No. 17, W. D. 1913, and G. O. No. 48, Hq. Eastern Dept., 1913, the following will govern the schools for officers and enlisted men of this post during the school year of 1913-14. All officers concerned, whether instructors or students, will familiarize themselves with the above cited orders.

* * * * *

II. GARRISON SCHOOL.

Lieut. Col. S. L. Faison, 5th Infantry is appointed supervising instructor.

Hours of instruction will be from 11:00 a. m. to 12:00 m. on the days appointed, but work may be given out to be done out of hours. Hours for examinations will be prescribed when the examination is announced.

PRELIMINARY COURSE OF INSTRUCTION.

1. MANUAL OF GUARD DUTY.

Instructor: Captain Herman Glade, 5th Infantry.
Instruction days: November 3, 4, 5, 6, 7, 10.
Examination day: November 11th.

2. ADMINISTRATION.

Instructor: Captain Joseph K. Partello, 5th Infantry.
Instruction days: November 12, 13, 14, 17, 18, 19, 20, 21, 24, 25, 26, 28, December 1, 2, 3, 4, 5, 8, 9.

3. MILITARY FIELD ENGINEERING.

Instructor: Captain Ralph McCoy, 5th Infantry.
Instruction days: December 10, 11, 12, 15, 16, 17, 18, 19, 22, 23.

4. FIELD SERVICE REGULATIONS.

Instructor: Captain Oliver Edwards, 5th Infantry.
Instruction days: January 5, 6, 7, 8, 9, 12, 13, 14, 15, 16.

5. MILITARY HYGIENE.

Instructor: Captain S. M. De Loffre, Medical Corps.
Instruction days: January 19, 20, 21, 22, 23, 26, 27, 28, 29, 30.

6. INFANTRY DRILL REGULATIONS.

Instructor: 1st Lieut. W. D. Wills, 5th Infantry.
Instruction days: February 2, 3, 4, 5, 6, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24, 25, 26, 27, March 2.

7. SMALL ARMS FIRING MANUAL.

Instructor: 1st Lieut. T. L. Crystal, 5th Infantry.
Instruction days: March 3, 4, 5, 6, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24, 25, 26, 27, 30.

REGULAR COURSE OF INSTRUCTION.

1. FIELD SERVICE REGULATIONS.

Instructor: Captain Oliver Edwards, 5th Infantry.
Instruction days: November 3, 4, 5, 6, 7, 10, 11, 12, 13, 14, 17, 18, 19, 20, 21, 24, 25, 26, 28, December 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 22.
Examination day: December 23.

2. ADMINISTRATION.

Instructor: Captain Joseph K. Partello, 5th Infantry.
Instruction days: January 5, 6, 7, 8, 9, 12, 13, 14, 15, 16, 19, 20, 21, 22, 23, 26, 27, 28, 29.
Examination day: January 30th.

3. INFANTRY DRILL REGULATIONS.

Instructor: Captain James Justice, 5th Infantry.
Instruction days: February 2, 3, 4, 5, 6, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24, 25, 26, 27, March 2, 3, 4.
Examination day: March 5th (for all captains and lieutenants in the course or holding previous certificates of proficiency unless excused by proper authority).

4. SMALL ARMS FIRING MANUAL.

Instructor: Captain James P. Harbeson, 5th Infantry.
Instruction days: March 6, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24, 25, 26, 27.
Examination day: March 30th.
The supervising instructor will keep and turn over to the Commanding Officer at the close of the school year such records as may be prescribed in advance.

POST GRADUATE WORK.

This work will be under the immediate direction of the Commanding Officer. Program will be announced at the proper time.
By order of Colonel Morton.

S. H. HOPSON,
1st Lieut. 5th Infantry, Adjutant.

THE SCHOOLS OF EQUITATION FOR OFFICERS.

At posts where mounted troops are stationed schools of equitation for officers are conducted. These schools are in addition to the regularly constituted Garrison Schools for Officers, but closely allied with them, and very properly come within this chapter.

The instructors are selected by the post or regimental commanders and are taken from graduates of the Mounted Service School at Fort Riley, Kansas (Chapter X), if any such are available. All lieutenants of mounted commands who are not graduates of the Mounted Service School attend until they have had three seasons of instruction or until by reason of their proficiency they have been selected for duty as instructors in the school for noncommissioned officers. (See Chapter XIII). The commanding officer may direct the attendance of other mounted officers of whatever rank, who, in his opinion, would be benefited by such instruction.

OBSTACLE RIDE FOR OFFICERS.

Closely related to the Schools of Equitation for officers is the prescribed "Obstacle Ride" for officers. The latter is, of course, purely a test of training and cannot be considered educational other than that it represents the average standard of proficiency expected of officers as a result of their instruction in the schools of equitation, and other theoretical and practical instruction. These obstacle rides are conducted as follows:

"Cavalry and Field Artillery officers commanding posts, and commanders of Cavalry and Field Artillery detachments or regiments at all posts and stations where such mounted troops are serving, annually conduct the officers of their commands over a course three miles in length over varied country with an average of three obstacles to the mile uniformly distributed throughout the course within a period of 11 minutes, but not less than 9 minutes. No officer is reported as having made the ride unless he shall have taken all the obstacles. There are six over-ground obstacles, which consist of fences, logs, brush, and stone walls, each not less than three feet

high and of such stiffness that they will not break when struck by the horse's feet, and three ditches, each of which are six feet wide and two and one-half feet deep. Post commanders fix the date of this ride, and the commanders of detachments or regiments make detailed report thereof through channels to the department commanders, who are responsible for carrying out this course of instruction. Field officers ride their own mounts, officers below that grade their own mounts, if they possess such, otherwise the Government horses regularly ridden by them on duty.

"Inspectors-general in making their inspections pay special attention to this matter and report all officers who fail to take the ride, giving the reasons therefor. Failure to take the ride from any cause is entered on an officer's efficiency record."

There are about 150 garrisoned posts in the United States (1914). Garrison schools are conducted at all of these with the exception of a few of them where the number of officers is not sufficient to maintain a school. A list of Army posts together with their geographical location and the military jurisdiction is given in Appendix III.

CHAPTER XIII.

POST SCHOOLS FOR ENLISTED MEN.
(At Military Posts).

"In light things
Prove thou the arms thou long'st to glorify,
Nor fear to work up from the lowest ranks,
Whence come great nature's captains. And high deeds
Haunt not the fringy edges of the fight,
But the pell-mell of men."

POST SCHOOLS.

FOR THE INSTRUCTION IN THE COMMON BRANCHES OF EDUCATION.

Schools for the instruction of enlisted men of the Army in the common branches of education are established at military posts. The orders authorizing and creating these schools particularly provide for "instruction in the common branches of education, especially in the history of the United States." Their establishment by post commanders is mandatory.

These schools are conducted in very much the same manner as are public schools. They have regular hours for sessions, roll calls, regularly assigned lessons and recitations, prescribed text books, etc. The school room discipline is, as would naturally be expected, much more rigid than in a public school. The hours of holding sessions are prescribed by the post commander. Men enrolled as students are given warning each day of the approaching school period by the sounding of "school call" by the trumpeter of the guard. This call is usually sounded five minutes before the session begins.

The commander of a post designates an officer, usually the chaplain, if one is stationed at the post, to supervise the post school. The subjects taught are largely elective. Many enlisted men avail themselves of the opportunity offered by this system of instruction to prepare themselves for civil service examinations.

Enrollment is not compulsory. Any enlisted men, however, who are very deficient in the common branches are encouraged to enroll. After a soldier has once enrolled attendance thereafter becomes a military duty. The punishment for failure to attend is the same as an absence from other military formation.

The teachers are enlisted men designated for this duty by the commanding officer of the post. The number of teachers does not exceed one for every fifteen pupils, or fraction thereof. Soldiers serving as

teachers get extra pay. However but one teacher in each post is allowed extra pay for duty on Saturdays, Sundays, and during vacation. This teacher is required to care for the books, and other property used in connection with the school.

In actual practice enlisted men frequently are taught in subjects other than the common branches. If no enlisted man is available to teach such subject, an officer may be designated to do so.

Experience has shown that there are many men in the ranks capable of serving as teachers. The results produced by these schools have in most cases been very satisfactory. The efficiency of the supervision, the capability of the enlisted teachers and the mature years of the students enrolled have all contributed to the benefits derived from this class of instruction.

Enlisted men detailed as school teachers are removed during the time of such service from the ordinary duties of their organizations. The extra pay allowed them for this duty is 50 cents a day. This is, of course, in addition to the regular pay they are already receiving.

FOR INSTRUCTION IN MILITARY SUBJECTS.

Responsibility for the military instruction of the noncommissioned officers of the companies rests with the company commanders, battalion and higher commanders exercising such supervision as may be necessary.

The schools for noncommissioned officers and specially selected privates are established in each company of infantry, cavalry, field artillery, and engineers not in the field.

There is no noncommissioned officers' school provided for coast artillery troops, other than instruction in field duties, covering hygiene, camping, field engineering, sketching, map reading, patrolling, etc.

Instruction is conducted by the company commander, or by an officer of the company under his supervision, and consists of recitations, lectures, discussions, and practical exercises. The course includes drill regulations of the arm of the service to which the company belongs, Army regulations relating to enlisted men, minor tactics, and subjects which specially pertain to the duties of noncommissioned officers and enlisted specialists of their arm of the service.

When practicable, elementary instruction in the Spanish language is also given.

Responsibility for the military instruction of noncommissioned officers of the regimental and battalion staffs and all enlisted specialists attached thereto rests with regimental and battalion staff officers. The

course and methods of instruction conform to that stated above for company noncommissioned officers. The instruction is conducted by the regimental and battalion staff officers under the supervision of their respective commanders.

The noncommissioned officers, specially selected privates, and enlisted specialists of a battalion, regiment or post may be assembled for instruction by means of lectures and practical exercises. In the event any of the organizations present at a military post have seen war service, at least one lecture during the course should concern the particular war, or campaign, engaged in by such organizations. It is enjoined that this lecture be given by a selected officer, and as many of the soldiers stationed at the post as may be accommodated in addition to those already mentioned are encouraged to attend.

Certificates of proficiency, signed by their company commanders, or staff officers responsible, are furnished to noncommissioned officers and others who have satisfactorily completed the course of instruction in a subject, and the officers who sign the certificates may then excuse them from further recitations and examinations in the same. The attendance at lectures, discussions, and practical exercises of enlisted men holding certificates of proficiency is, however, at the discretion of their immediate commanders.

Post schools are under the supervision of department commanders and their decisions on matters pertaining to them are final. These commanders are directed to cause an inspection of these schools to be made at such times and under such regulations as they may deem advisable.

The practical value of a large part of the training and education the enlisted men receive at these schools which would directly pertain to their usefulness as private citizens after their enlistment has expired is inestimable. Their instruction must have a considerable economic value. The time of one enlistment in the army, if well improved, is not time lost to the average American youth, but time gained. While he does not get with his discharge a college diploma, he does get, if he is the right kind of a man, a schooling that in many cases is equally as valuable. It is a most noteworthy fact that there are very few instances where a man who has been a good soldier has not made a valuable citizen. The needlessly unemployed class seldom number in their ranks ex-soldiers with good records.

SCHOOLS OF EQUITATION FOR NONCOMMISSIONED OFFICERS AND SELECTED PRIVATES.

Separate from and in addition to the post schools for enlisted men are the schools of equitation for noncommissioned officers and selected privates. These schools are held only at posts where mounted troops are stationed. As the prescribed course is largely practical, and may be considered more in the nature of military training rather than educational, it will be but briefly treated.

The instructors are officers who have qualified for such duty either at the Mounted Service School (Chapter X) or in the Officers' School of Equitation. (See Chapter XII). Noncommissioned officers and selected privates of mounted commands are designated to attend, so that they may be prepared to train recruits and to impart to the latter correct ideas of equitation from their entry into the service.

The courses of instruction followed will be based upon that of the Mounted Service School.

To give a correct idea as to the practical workings of post schools for enlisted men it is thought advisable to give in full a specific case of a post order organizing one of these schools. The order which follows, as shown in its heading, emanates from headquarters of the 5th U. S. Infantry stationed at Plattsburg Barracks, New York. Similar orders published at other garrisoned posts conform in most of their essentials to the form and language of this order:

GENERAL ORDERS } HQ. PLATTSBURG BARRACKS, N. Y.,
No. 36. } October 23, 1913.

Under and supplementary to the provisions of G. O. No. 70, W. D., 1910, as amended by G. O. No. 150, W. D., 1911, G. O. No. 17, W. D., 1913, and G. O. No. 48, Hq. Eastern Dept., 1913, the following will govern the schools for officers and enlisted men of this post during the school year of 1913-14. All officers concerned, whether instructors or students, will familiarize themselves with the above cited orders.

I. POST SCHOOL.

(a) FOR INSTRUCTION IN THE COMMON BRANCHES OF EDUCATION.

Supervisor: Chaplain H. A. Chouinard, 5th Infantry.

School hours: 1:00 to 4:00 p. m., Mondays, Wednesdays and Fridays, except holidays and the period from December 24th to January 2nd, both days inclusive.

Each case of absence not positively known to be authorized will be promptly reported by the supervisor to the Commanding Officer.

The supervisor will keep and turn over to the Commanding Officer at the close of the school year such records as may be prescribed in advance.

(b) FOR INSTRUCTION IN MILITARY SUBJECTS.

Battalion commanders will prescribe subjects of instruction and the period to be devoted to each. They will also supervise instruction. The regimental commander will perform like duty for the regimental detachment. Battalion commanders will submit programs to the regimental commander for approval in advance.

Instruction will be given on Mondays, Wednesdays and Fridays, except holidays and the period from December 24th to January 2nd, both days inclusive. Hours will be at the discretion of battalion commanders and the commanding officer of the regimental detachment.

At the conclusion of each subject, battalion commanders will personally conduct examinations and will certify to company commanders the names of men proficient. The regimental commander will perform like duty for the regimental detachment.

Battalion commanders will keep and turn over to the Commanding Officer at the close of the school year such records as may be prescribed in advance. * * * * *

By order of Colonel Morton.

S. H. Hopson,
1st Lieut. 5th Infantry, Adjutant.

The wide range of diversity of the education of the commissioned officers of the Army is pretty generally known, but the varied lines of instruction of the enlisted men is not so well understood. In addition to the subjects mentioned elsewhere in which enlisted men are given instruction, it might be well to give emphasis to another. This can best be done by embodying an order issued from the headquarters of the Coast Defenses of Boston Harbor. This order creates a school for radio operators, and locates it at Ft. Andrews, one of the forts in the harbor. The order is given in its entirety, including the names of the enlisted men who are designated to take the course of instruction

General Orders } Headquarters, Coast Defenses of Boston,
No. 2 } Fort Warren, Mass., January 6, 1914.

1. A school for radio operators is hereby instituted at Fort Andrews, Mass.

2. The following men are detailed as students, and will proceed to Fort Andrews on January 8, 1914, reporting not later than 1:00 p. m. to the Fort Commander:

Private Frank Artis .....7th Co. CAC.
Private Frank L. Gracey .....9th Co. CAC.
Private Louis Weiss .....46th Co. CAC.
Private Waldo E. Ard .....59th Co. CAC.
Private Stephen Burke .....96th Co. CAC.
Private Lester Baldwin .....120th Co. CAC.
Private Isaac Kalmanson .....124th Co. CAC.
Private Archie R. Benson .....151st Co. CAC.
Private Julius A. Dula .....152d Co. CAC.
Private Harold A. Mullen .....153d Co. CAC.

3. These men will be attached to companies for quarters and rations by the Fort Commander, Fort Andrews.

4. The following hours and subjects of instruction are announced:

(a) 8:00 a. m. to 11:30 a. m.
Instruction in code 8:00 to 9:00 a. m.
Recreation: 9:00 to 9:30 a. m.
Theoretical Instruction 9:30 to 10:30 a. m.
Instruction in receiving with buzzer: 10:30 to 11:30 a. m.

(b) 1:00 p. m. to 4:00 p. m.
Instruction in sending and receiving with key and buzzer: 1:00 to 2:30 p. m.
Instruction in tuning and adjusting both pack and station sets (3 types): 2:30 to 4:00 p. m.

(c) Daily except Wednesday afternoons, Saturdays, Sundays and Holidays.

(d) As each man becomes proficient in receiving he will take a tour of two hours on watch at the Radio Station set.

5. The Artillery Engineer will have charge of the instruction, and will report to these headquarters (a) such men as qualify in the entire course, that others may replace them as they qualify; (b) such men as show that they are unfit to take the course, that they may be returned to their companies.

6. While on this duty the men named herein, or who may hereafter be ordered to take this course, will be excused from other military duties, except in case of urgent necessity.

By order of Colonel Hawthorne.

F. W. RALSTON,
Captain, Coast Artillery Corps, Adjutant.

CHAPTER XIV.

SCHOOLS FOR BAKERS AND COOKS.

(Presidio of San Francisco, California, and Washington Barracks, D. C.).

"Of all appeals—although
I grant the power of pathos and gold,
Of beauty, flattery, threats, a shilling—no
Method's more sure at moments to take hold
Of the best feelings of mankind, which grow
More tender as we every day behold,
Than that all-softening, overpowering knell,
The tocsin of the soul—the dinner bell."—*Byron.*

There are two schools for Army bakers and cooks; one of them is located at the Presidio of San Francisco, California, and the other at Washington Barracks, District of Columbia. There is also a somewhat similar school at Fort Riley, Kansas, connected with the Mounted Service School (see Chapter X).

It would occur to some as rather far-fetched to include in a treatise on military education schools for bakers and cooks. Possibly it is, but these schools are as much a part of the educational system of the United States Army as departments of home economics are a part of our civil educational institutions, yet few would eliminate this very necessary branch of study from a disquisition on general education.

It is attributed to Napoleon to have said, "An army moves on its belly." Whether Napoleon or other keen observer of things military gave birth to this thought, the proverb, if such it may be called, is brim full of fact if not taken too literally. This maxim being accepted it follows that this vehicle on which the army moves must be well served. No better method of securing efficient service could be devised than a thoroughly organized school, or schools, wherein are trained a corps of men whose sole duty is that of providing cooked food for the men who fight. Such schools have been provided for our Army.

The Schools for Bakers and Cooks are designated in Army Regulations as a part of the military educational system of the United States, and very properly so. Like other schools of the Army the supreme directing force of these very necessary institutions is the headquarters of the Army in Washington, whence emanate the orders

prescribing the organization of the schools, the course of study, the methods to be pursued, and other essentials of their administration.

The same general regulations govern both schools.

Army cooks are not all necessarily enlisted as such. Any enlisted man capable of performing this service may be designated as a cook. Each company of engineers, coast artillery or infantry, or troop of cavalry has two cooks; a battery of field, horse or mountain artillery has three.

Cooks receive more pay than privates. They belong to the combatant force and may be required to take a place in the firing line. They are subject to all the laws, rules and regulations governing other enlisted men of the Army.

ORGANIZATION AND INSTRUCTION.

The commanding officer, Presidio of San Francisco, California, under the direction of the commanding general, Western Division, and the commanding officer, Washington Barracks, District of Columbia, under the direction of the commanding general, Eastern Division, are the commandants of the respective schools at those posts.

The commandant of each school, under the direction of the division commander concerned, arranges the program of instruction as to subjects, textbooks, and allotment of time, prescribes the character and scope of examinations, and has final determination of all questions of proficiency.

The commandant of each school, under the direction of the division commander concerned, designates in orders the men that are to act as instructors, first class and second class, and determines the number of such instructors.

The term of each school is four months. Enlisted men of previous experience or of marked ability may, when deemed proficient by the officer in charge, be graduated after three months' instruction. Enlisted men who are unable to qualify within the four months, but who have nevertheless demonstrated their fitness for the work, may be retained for additional instruction for a period not to exceed one month.

The course of theoretical and practical instruction is conducted by the officer in charge of each school, who submits to the commandant thereof an annual report not later than July 20 regarding the progress and needs of the school.

The commandant of each school submits to The Adjutant General of the Army, through military channels, not later than August

31 of each year, a report regarding the progress and needs of the school.

The classes under instruction are composed of enlisted men specially recommended by the organization, district, or regimental commanders, who have not less than two years and six months to serve, or who, having less than that time to serve, have signified in writing their intention to reenlist. Enlisted men who have only a short time to serve and who have not signified their intention to reenlist are not recommended for detail. In no case are men selected whose enlistments would expire at the schools.

The enlisted men recommended must be of excellent character, in good physical condition, and well grounded in reading, writing, and arithmetic. They must be men who have expressed a willingness to accept the detail.

There is continually under instruction in each school four classes of bakers and four classes of cooks, a new class of each to enter on the fifteenth of every month.

An organization, district, or regimental commander desiring to enter a soldier in one of these training schools makes application for the privilege through military channels to his division commander. Applications may be forwarded at any time.

Regimental commanders take proper steps to have at least one graduate baker available with each regiment. This provision does not apply to regiments outside the United States until their return.

Students for the training school at the Presidio of San Francisco are designated by the commanding general of the Western Division, and for the training school at Washington Barracks by the commanding general of the Eastern Division, in order to reach the actual needs of the service without exceeding the accommodations of these schools.

In addition to the above, the commandant of each school, with the approval of the division commander concerned, is authorized to detail such enlisted men belonging to organizations stationed at the post where the school is located as in his opinion are available and suitable; these men are exempt from so much of the requirements as pertain to a specified length of time of their periods of enlistment to serve.

Commanders of organizations note on the descriptive lists of men ordered for instruction, "Bakers' class" or "Cooks' class," depending upon the nature of the instruction.

Upon the completion of the school course certificates of proficiency are awarded to men who successfully pass a satisfactory theoretical and practical examination. Degrees of proficiency are noted thereon as follows:

Assistant baker: A competent journeyman baker.

Baker: Same as assistant baker, and capable of handling a bakery, its working force, and all of its accounts.

Second cook: A competent organization cook.

First cook: Same as second cook, and capable of handling a kitchen, its working force, and simple accounts.

Mess sergeant: A first cook who has demonstrated for at least one month his ability to supervise and control all details and accounts of an organization mess.

The commandant of each school, with the approval of the division commander concerned, is authorized to retain from each class for a period not to exceed two months such graduates (not to exceed four) as are deemed competent and necessary to act as first and second class instructors. The names of enlisted men retained under this authority are promptly reported to their respective commanding officers, with the information that upon expiration of the period of retention the men will be returned to their proper organizations.

COURSE OF INSTRUCTION.

The course of instruction is varied and embraces both practical and theoretical work. Series of circulars containing data as to baking and cooking are prepared from time to time for the information of those taking instruction.

While the school is not primarily for the purpose of training chefs for civil employment yet those who have had this course of instruction, with the practical experience of handling the Army ration, find themselves very competent to perform the duties of cook and find their services much in demand as such after they have severed their connection with the Army.

The instruction confines itself very largely to the handling of the Government ration. A "ration" is the allowance for the subsistence of one person for one day and varies in components according to the station of the troops or the nature of the duty performed by them.

There are six kinds of rations, viz.: the garrison ration; the field ration; the haversack ration; the travel ration; the Filipino ration, and the emergency ration. The garrison ration is for troops in gar-

rison or in permanent camps; the field ration is for troops in the field with sufficient transportation; the haversack ration is for troops in the field in active campaigns when transportation facilities are limited; the travel ration is for troops traveling otherwise than by marching and when they are separated from cooking facilities; the Filipino ration is for the use of the Philippine scouts in the Philippine Islands, and the emergency ration is for troops in active campaign for use in case of emergency. The latter ration, however, is not a fixed ration, as it has been changed from time to time, has never been entirely satisfactory and therefore is not considered in the discussion given in this chapter.

The kind of ration to be issued and which may be authorized for the particular occasion or service is determined by the commanding officer of the troops concerned.

Of the six kinds of rations named the school has to deal particularly with the first named, viz.: garrison ration. The course of instruction includes computation of the money value of the component parts of these rations, their relative food value; preparation of menus and numerous dishes which may be prepared from any one or a combination of two or more of them.

The handling of the field ration is also gone into very thoroughly including methods of packing, issuing, preparing and preserving against deterioration by heat or cold, or by contamination.

Instruction is also given in the issue of the haversack ration and the handling of the travel ration.

The preparation of ration returns, requisitions for rations and other paper work pertaining to the drawing and expending of commissary supplies is taught both in theory and practice.

The question of sanitation with particular reference to the kitchen is gone into very thoroughly. This instruction includes the disposal of slops and other waste arising from the preparation and issue of food to the men.

There are special manuals issued by the War Department which serve as textbooks for the course of instruction. These manuals embrace among other things the following: cash ration; issue ration; the cash value of the garrison and travel rations and the savings allowed on the garrison ration; ration conversion tables; quantities of the several components to prepare for each meal; bills of fare, which take into consideration the variety of flavor, time of year and climate, character of work performed by the soldiers, etc.; the

study of specifications for the purchase of fresh beef, including the determination of the sex of the slaughtered animals, the names of the various cuts, the age and quality, etc.; the construction of various field expedients such as extemporized bake ovens consisting of various forms of dug out ovens, one- and two-barrel mud ovens, and one- and two-barrel mud ranges; the construction of incinerators; various computations in weights and measures; methods of preparing the water for drinking purposes by means of boiling and aerating, and cooling by evaporation.

From the above it may be seen that the course is very thorough and embraces practically everything that might be included in the securing of the food supplies and in preparing them for the use of the men.

The variety and quantity of food issued to soldiers is possibly much greater than popular opinion would have it. The United States soldier is said to be the best fed soldier in the world. The authorized supply of food is ample in every way. Every step is taken to insure careful inspection before purchasing and issuing, but this of course, in times of active war where means of transportation are limited is sometimes impossible. To get fresh and wholesome foods at all times under war conditions is difficult, and often the inspection is necessarily a matter of second consideration.

Perhaps a better idea of the quantities and kinds of food supplies may be obtained by embodying in tabulated form the authorized issue as given in the Army Regulations. The quantities noted on the left side of the table are the "issue articles," the "substitutive articles" are noted opposite these and on the right side of the page. By a combination of the regular issue and of the substitutives it will be seen that an endless variety of menu may be secured:

1. GARRISON RATION.

Component articles and quantities.		Substitutive articles and quantities.	
Beef, fresh	20 ounces	Mutton, fresh	20 ounces
		Bacon[1]	12 ounces
		Canned meat, when impracticable to furnish fresh meat	16 ounces
		Hash, corned beef, when impracticable to furnish fresh meat	16 ounces
		Fish, dried	14 ounces
		Fish, pickled	18 ounces
		Fish, canned	16 ounces
		Chicken or turkey, dressed on national holidays when practicable	16 ounces
Flour	18 ounces	Soft bread	18 ounces
		Hard bread, to be ordered issued only when impracticable to use flour or soft bread	16 ounces
		Corn meal	20 ounces
Baking powder	0.08 ounce	.....	
Beans	2.4 ounces	Rice	1.6 ounces
		Hominy	1.6 ounces
Potatoes[2]	20 ounces	Potatoes, canned	15 ounces
		Onions, in lieu of an equal quantity of potatoes, but not exceeding 20 percentum of total issue	15 ounces
		Tomatoes, canned, in lieu of an equal quantity of potatoes, but not exceeding 20 percentum of total issue.	
		Other fresh vegetables (not canned) when they can be obtained in the vicinity or transported in a wholesome condition from a distance, in lieu of an equal quantity of potatoes, but not exceeding 30 percentum of total issue.	
Prunes	1.28 ounces	Apples, dried or evaporated	1.28 ounces
		Peaches, dried or evaporated	1.28 ounces
		Jam, in lieu of an equal quantity of prunes, but not exceeding 50 percentum of total issue.	
Coffee, roasted and ground	1.12 ounces	Coffee, roasted, not ground	1.12 ounces
		Coffee, green	1.4 ounces
		Tea, black or green	0.32 ounce
Sugar	3.2 ounces	.....	
Milk, evaporated, unsweetened	0.5 ounce	.....	
Vinegar	0.16 gill	Pickles, cucumber, in lieu of an equal quantity of vinegar, but not exceeding 50 percentum of total issue.	
Salt	0.64 ounce	.....	
Pepper, black	0.04 ounce	.....	
Cinnamon	0.014 ounce	Cloves	0.014 ounce
		Ginger	0.014 ounce
		Nutmeg	0.014 ounce
Lard	0.64 ounce	Lard substitute	0.64 ounce
Butter	0.5 ounce	Oleomargarine	0.5 ounce
Sirup	0.32 gill	.....	
Flavoring extract, lemon	0.014 ounce	Vanilla	0.014 ounce

[1] In Alaska, 16 ounces bacon, or, when desired, 16 ounces salt pork, or 22 ounces salt beef.

[2] In Alaska the allowance of fresh vegetables will be 24 ounces instead of 20 ounces, or canned potatoes, 18 ounces instead of 15 ounces.

NOTE.—Food for troops traveling on United States Army transports will be prepared from the articles of subsistence stores which compose the ration for troops in garrison, varied by the substitution of other articles of authorized subsistence stores, the total daily cost per man of the food consumed not to exceed 20 per cent. more than the current cost of the garrison ration, except on Thanksgiving Day and Christmas, when 60 per cent. increase over the same current cost is authorized.

2. FIELD RATION.*

Component articles and quantities.		Substitutive articles and quantities.	
Beef, fresh, when procurable locally	20 ounces	Mutton, fresh, when procurable locally	20 ounces
		Canned meat	16 ounces
		Bacon	12 ounces
		Hash, corned beef	16 ounces
Flour	18 ounces	Soft bread	18 ounces
		Hard bread	16 ounces
Baking powder, when ovens are not available	0.64 ounce		
Yeast, dried or compressed, when ovens are available	0.04 ounce		
Beans	2.4 ounces	Rice	1.6 ounces
		Potatoes, canned	12 ounces
Potatoes, when procurable locally	16 ounces	Onions, when procurable locally, in lieu of an equal quantity of potatoes, but not exceeding 20 per centum of total issue.	
		Tomatoes, canned, in lieu of an equal quantity of potatoes, but not exceeding 20 per centum of total issue.	
Jam	1.4 ounces		
Coffee, roasted and ground	1.12 ounces	Tea, black or green	0.32 ounce
Sugar	3.2 ounces		
Milk, evaporated, unsweetened	0.5 ounce		
Vinegar	0.16 gill	Pickles, cucumber, in lieu of an equal quantity of vinegar, but not exceeding 50 percentum of total issue.	
Salt	0.64 ounce		

3. HAVERSACK RATION.

Component articles and quantities.		Substitutive articles and quantities.
Bacon	12 ounces	
Hard bread	16 ounces	
Coffee, roasted and ground	1.12 ounces	
Sugar	2.4 ounces	
Salt	0.16 ounce	

4. TRAVEL RATION.

Component articles and quantities.		Substitutive articles and quantities.	
Soft bread	18 ounces	Hard bread	16 ounces
Beef, corned	12 ounces	Hash, corned beef	12 ounces
Beans, baked	4 ounces		
Tomatoes, canned	8 ounces		
Jam	1.4 ounces		
Coffee, roasted and ground	1.12 ounces		
Sugar	2.4 ounces		
Milk, evaporated, unsweetened	0.5 ounce		

*The field ration was dispensed with in edition of Army Regulation, Nov. 15, 1913.

5. FILIPINO RATION.

Component articles and quantities.		Substitutive articles and quantities.	
Beef, fresh	12 ounces	Bacon	8 ounces
		Canned meat	8 ounces
		Fish, canned	12 ounces
		Fish, fresh	12 ounces
Flour	8 ounces	Hard bread	8 ounces
Baking powder, when in field and ovens are not available	0.32 ounce	Soft bread	8 ounces
Rice, unpolished	20 ounces		
Potatoes	8 ounces	Onions	8 ounces
Coffee, roasted and ground	1 ounce		
Sugar	2 ounces		
Vinegar	0.08 gill		
Salt	0.64 ounce		

CHAPTER XV.

STUDENTS' MILITARY INSTRUCTION CAMPS.

"I am very much pleased with the increased interest in the military preparation and needs of our country lately taken not only by the students of Yale University but by students of many other universities and colleges and by the educated people throughout the country. I am sure that, if our citizens only knew more about the subject of national defenses, and the ways and means vital and necessary to be properly prepared, the War Department would not have to beg consideration of its projects, but the people themselves would demand their carrying out. I believe it is the duty of all true citizens of our country to familiarize themselves with this subject, as upon the mere fact whether or not the country is adequately prepared for war may depend the continued peace and prosperity of the nation and even their own lives as well.

"The subjects of military policy, military organization, and the true military history of our country should be included in the university and college curriculum. This is necessary to the complete education of a well equipped citizen in order that he may form just and true opinions on military subjects and be able to judge for himself just what is necessary in this respect for the proper safeguarding of the nation and the means to effect same."—*Hon. Lindley M. Garrison*, Secretary of War.

An innovation was instituted in 1913 in the way of popularizing military education by holding two camps of instruction for college students and graduates of high schools. These camps were held during the months of July and August; one of them at Gettysburg, Pennsylvania, and the other at Monterey, California. The period of instruction was for five weeks, the students gave about four hours daily to drills, tactical walks, lectures, etc. The course for the limited time at the disposal of the students was rather comprehensive and necessarily skimmed over.

The experiment was considered by the War Department authorities as a decided success, although the number attending was not as large as was expected. The interest on the part of the students was keen, and the enthusiasm with which the camps opened kept up for the entire period of the camp.

The War Department furnished the equipment, including bedding, tentage, rifles, mess kits, etc. The instructors were Army officers especially selected for their fitness for the duties required of them.

The movement was received with general favor on the part of college authorities, many of the presidents being heartily in sympathy with it. Among the latter might be mentioned President Henry Sturgis Drinker of Lehigh University. In an article appearing in the *New York Times* of Aug. 17, 1913, he says of the Gettysburg Camp:

HON. LINDLEY M. GARRISON,

SECRETARY OF WAR.

"When in May last I received the letter sent out by General Leonard Wood, Chief of Staff of the United States Army, to the presidents of our American Universities and Colleges, stating that the Secretary of War had decided to hold during the following summer two experimental military camps of instruction for students of such institutions, I received the word with hearty appreciation of the immense good to our young men likely to result from such an establishment. Of all things that the American youth of today needs, and needs most, is the advantage resulting from an experience of rigorous self-imposed discipline, as the young men joining these camps would go of their own motion. Among young men there are especially two classes to whom such an experience would be most valuable—those coming from well-to-do indulgent parents, and those who, lacking parental control, have developed an independence of action not consistent in all respects with the proper conventions of society and life. Nothing could be better for these men or for any others of our youth, than to be thrown together for a time in a body under the careful supervision of the splendid men to whom have been delegated the care and supervision of our boys in these camps—officers of the army, devoted to the service of their country, gentlemen of high ideals, thorough training, and intensely and patriotically interested in the work. It is an enormous error to consider or look on these camps as training schools simply to develop a measure of military efficiency. No man has better expressed the great value of systematic military training than Price Collier in his 'Germany and the Germans,' where he gives the German system credit for far more in the national advancement than mere military preparedness. As he well says, 'One can understand that Germany has little patience with the confused thinking which maintains that military training only makes soldiers and only incites to martial ambitions; when, on the contrary, she sees every day that it makes youths better and stronger citizens, and produces that self-respect, self-control, and cosmopolitan sympathy which more than aught else lessen the chance of conflict.' * * * * * 'Soldiers and sailors train themselves, and train others, first of all to self-control, not to war. It is a pity that 'Compulsory Service' has come to mean merely training to fight. In Germany, at any rate, it means far more than that. Two generations of Germans have been taught to take care of themselves physically, without drawing a sword. It is rather a puzzling commentary upon the growth of democracy, that in America and in England, where most has been conceded to the majority, there is least inclination on their part to accept the necessary personal burden of keeping themselves fit, not necessarily for war, but for peace, by accepting universal and compulsory training.'

"Physical training, compulsory on all students in all classes, properly supervised by competent directors of physical education, is becoming the rule in our colleges for men and women, and we all recognize the immense advance that has been made in this respect in the development of healthy, strong-lunged and strong-hearted youths and maidens, but the accentuation of physical training with a measure of military discipline and provision is a further great step in advance.

"I have had the pleasure of visiting the instruction camp at Gettysburg and again the second camp for target practice, at Mount Gretna, to which the boys marched from Gettysburg, camping by the way, and learning practically how to care for themselves by day and by night while living in the open air. My interest in these visits was of course intensified by my desire to see our delegation of Lehigh students at the camps, and the fact that one of my own sons was there with my hearty approval and encouragement made the visits especially interesting to me personally. I could see nothing to criticise and everything to commend and admire. The camp arrangements, medical care, camp hospital, shower-baths, living tents, were perfect, and the food was excellent, all at small cost. The boys were carefully instructed in the principles of modern camp sanitation and the proper caring for and disposal of excreta and of waste from the kitchen; this is information of the highest importance, and is information that the average citizen never gets; the want of it has cost many precious lives not only in our Civil and Spanish wars, but it is felt today in our citizen life. I slept on a cot, as the boys did, in the nights I spent at camp, and ate in their mess tent where the boys and officers met at meals. I was impressed with the cordiality and kindly intercourse between the officers and

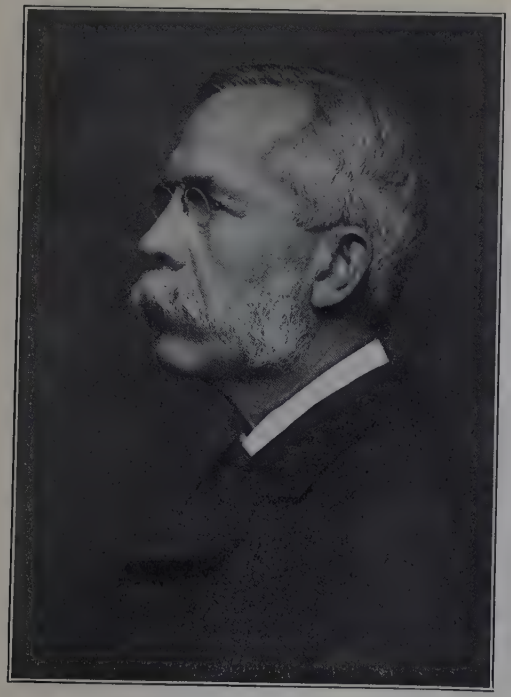
students and especially with the intense interest shown by the young men in all their exercises.

"Rising at the call of the bugle at five-fifteen, they first had open air—setting up—gymnastics under the leadership of an officer. Then a good breakfast. Then, after a short rest, several hours of instruction in various open air duties, ending with a lecture on some interesting subject from one of the officers in charge. The afternoons and evenings were devoted to voluntary exercises or to sports, at the option of the students. So keen were they for voluntary cavalry drill, fencing, broadsword practice, artillery drill, etc., etc., that on one day I was there I heard the commandant give stringent directions to the officers in charge to lessen the amount of this voluntary work in the afternoon and force the young men to rest and recreation for a change. The camp is in fact a training-school for manly men and good citizens with the best of good influences. Regular work in the morning, voluntary engagements, baseball and other recreation, in the afternoon and evening, all of it ideally good thorough training, with healthful sport interspersed, careful but not oppressive supervision and regulation, absolutely healthful surroundings, and good associations. I can think of no six weeks that could be spent by our boys to better advantage to themselves and with better promise to our country of development of good manly men and gentlemen.

"I found over fifty Universities and Colleges represented by student delegations, among them most of the leading institutions of the East. The Western institutions of course, sent their delegations to the other camp, established at the Presidio of Monterey, California, and I saw commendatory notes from the Presidents of many institutions, from the leaders of education in our country, a unanimous expression from those best qualified in our land to form and express an opinion of approval of the training proposed.

"The country owes a great debt of gratitude to the men who devised and put into effect this experiment for the benefit of our youth, and it is greatly to be hoped that it may go on and be developed and enlarged to embrace in succeeding years as many of our young men as possible. Our University and College bred youths should develop as a class into leaders of our people; surely in their training nothing can be more valuable than this hard disciplinary experience in obedience and regular clean living, and if with it all, they gain some knowledge of the art of war, a citizen soldiery is not an armed camp, and if the optimistic doctrine of our extreme peace advocates is correct, that if driven to war we can rely on the patriotism and efficiency of our citizens, it may be well that those citizens have at least some appreciation of the rudiments of the duties to which they may be suddenly called. I come of Quaker stock and all my instincts are for peace, but I believe that peace will be the more assured to our beloved nation if with prudence we learn to know our strength and to conserve it for our good and the good of the world, rather than rely on the present existence of a millennium that we pray will come in time but that today is not with us."

President Drinker's article is worthy the careful reading of every true American citizen. His views on military education and training would serve as a most excellent national military policy. He has thoroughly grasped the idea that military preparedness does not mean military aggressiveness, but rather operates most decidedly for peace. He fully realizes that we have not yet passed the milestone on the road to the millennium where individuals and nations fail, in many instances, to take advantage of the weak. This noted educator has also a full appreciation of the economic value of military training.



HENRY STURGIS DRINKER, LL. D.,

PRESIDENT OF LEHIGH UNIVERSITY, SOUTH BETHLEHEM, PA.; PRESIDENT OF THE SOCIETY OF THE NATIONAL RESERVE CORPS.

GUY POTTER BENTON, LL. D.,

PRESIDENT OF THE UNIVERSITY OF VERMONT, AND SECRETARY OF THE NATIONAL ASSOCIATION OF STATE UNIVERSITIES, WHO WAS ACTIVE IN SECURING A STUDENTS' INSTRUCTION CAMP FOR THE NORTHEAST SECTION OF THE UNITED STATES.

CAPTAIN OLIVER EDWARDS,
FIFTH U. S. INFANTRY,

DESIGNATED BY THE SECRETARY OF WAR TO COMMAND THE STUDENTS' INSTRUCTION CAMP FOR THE NORTHEAST SECTION OF THE UNITED STATES AT BURLINGTON, VERMONT, 1914.

FUTURE PLANS FOR STUDENTS' CAMPS.

Under date of October 17, 1913, the Chief of Staff of the Army issued from Washington, Bulletin No. 1, which expresses the faith of the War Department in these student camps of instruction by making provision for increasing the number of the camps, making them more generally accessible, and also prescribing in a general way the rules and regulations governing them, including method of making application for attendance, etc.

This bulletin applies of course to camps for 1914, but as it is based on the experience gained from one most successful season of this work, its essential features may be considered as permanent in their application to all future camps.

The bulletin follows:

1. In view of the great success of the two experimental military camps of instruction for students of educational institutions held during July and August of the past summer at Monterey, Cal., and Gettysburg, Pa., the War Department has decided to repeat them in the ensuing year.

2. The object of the camp is, as before, to give to the young men of the country who are desirous of accepting it the opportunity for a short course in military training, in order that they may be better fitted to discharge their military duty to their country should it ever stand in need of their service. The time selected for these camps (summer vacation period) is intended to enable college men to attend with the least inconvenience and greatest instructional advantage to themselves.

3. In addition to the above patriotic motive of attendence, there are to be considered the physical benefits derived by the students from the active, healthful outdoor life of a military camp for the summer vacation, and this at less expense than is usually required when away from home. These physical benefits are of great and permanent value at this student period of their lives, when the pursuit of their studies during the balance of the year requires a certain amount of confinement. There are also the mutually broadening influences derived from meeting and being intimately associated with students of other well-known institutions, and the opportunity afforded for athletic training and contests, as well as the novelty of the experience itself, all contributing variety and interest to the program.

Another gain to the student is a certain increase in his economic value due to the increased business efficiency acquired through habits of discipline, obedience, self-control, order, command, and the study of organization and administration as applied in first-class modern armies.

4. The benefit of these camps to the Nation is that they foster a patriotic spirit, without which a nation soon loses its virility and falls into decay; they spread among the citizens of the country a more thorough knowledge of military history, military policy, and military needs, all necessary to the complete education of a well-equipped citizen in order that he may himself form just and true opinions on military topics.

As a military asset, the value of these camps is inestimable. They afford the means of materially increasing the present inadequate personnel of the trained or partially trained military reserves of the United States, and this increase consisting of a class of educated men from which in time of national emergency a large proportion of the volunteer commissioned officers will probably be drawn, and upon whose judgment and training at such a time the lives of many other men will in a measure depend.

The ultimate object sought is not in any way one of miltary aggrandizement, but to provide in some degree a means of meeting a vital need confronting us as a peaceful and unmilitary people, in order to preserve the desired peace and prosperity through the only safe precaution, viz.: more

thorough preparation and equipment to resist any effort to break such peace.

5. Only those will be allowed to attend who are students in good standing of a first-class university, college, or in the graduating class at high or preparatory schools; recent university or college graduates, and those who have received a satisfactory official War Department certificate of attendance at a previous student camp.

Applicants must be citizens of the United States or have declared their intention of so becoming; 18 to 30 years of age, inclusive; of good moral character, and physically qualified.

6. Students must attend for the full period of five weeks, unless compelled by actual necessity to leave before that time. They must during this period render themselves subject to the rules and regulations prescribed for the government of the camp, the commanding officer having authority to discontinue their attendance, withhold certificate, or both, upon violation of such ordinances.

7. (a) Transportation.—Students will be required to pay their traveling expenses to and from the camp; this item will be made as small as possible by selecting the several campsites in as central a location as may be found practicable, giving due consideration to average travel from the homes of those attending and to the advantages offered in the camp sites.

(b) Subsistence.—Wholesome, healthful, and ample meals will be furnished at the rate of $3.50 a week, or $17.50 for the entire period. This amount must be presented upon arrival and includes payment of cooks, assistant cooks, waiters, and other expenditures not especially enumerated elsewhere. These meals will be prepared by trained Army cooks and will be under the constant personal supervision of an officer.

(c) Clothing.—The uniform required will be:

1 suit of cotton olive drab colored uniform.
1 extra pair breeches.
1 campaign hat with distinctive hat cord.
1 pair leggings.
2 cotton (or wool) olive drab colored shirts.

These articles (with exception of hat cord) are similar to those prescribed for use in the Regular Army. If not already possessed by the student, they must be purchased by him and will cost from about $5 to $10, depending upon quality. To avoid delay and trouble in fitting at the camp, it is preferable for students to obtain the above uniform in advance. * * * *

8. (a) The Government will furnish, without charge, cots, blankets, tentage, cooking outfits, a complete infantry equipment for each man, including rifle, bayonet, cartridge belt, canteen, shelter-tent half, pole and pins, haversack, pack carrier, individual mess-kit, knife, fork, spoon, and cup, and such other articles of quartermaster and ordnance property as may be found necessary; these to be turned in upon completion of camp. All articles lost or broken to be paid for by student.

(b) The Government will also provide proper cooking and baking facilities, wagon transportation needed, and the necessary personnel for instruction, organization, and maintenance of the camp, hospital, and medical care and sanitation; in short, everything tending to the health and comfort of those attending, which lawfully can be furnished by the War Department, will be provided.

(c) Such troops of the Regular Army as may be necessary, and which may be available for this purpose at the time of the camp, will be in attendance and will cooperate in the military instruction and in the different field maneuvers, exercises and demonstrations. If practicable, cavalry and field artillery instruction will be given and opportunity offered to those who desire it to actually ride the horses of the former or the caissons and guns of the latter.

(d) The theoretical principles of tactics, including advance and rear guards, patrols, outposts, and combat, will be studied and explained in a series of informal talks, tactical walks, and war games conducted by selected competent officers.

The practical application of the above will be carried out in the field by the students themselves and also in conjunction with the regular troops, blank ammunition being used to make the exercises more realistic.

INSTRUCTION IN HORSEMANSHIP.

INSTRUCTION IN CONSTRUCTING TRENCHES.

INSTRUCTION IN FIELD ARTILLERY.

SCENES FROM STUDENTS' MILITARY INSTRUCTION CAMP AT GETTYSBURG, PA., 1913.

(e) Military map making and road sketching will be explained and opportunities for practical work in that subject offered to those who desire it.

(f) The proper handling and use of the rifle will be taught and experience given by means of gallery (or subcaliber) practice. If practicable, actual firing with the service rifle and ammunition on the target range will be held. To those students making the necessary qualifications over the prescribed course the National Rifle Association of America will give their prescribed marksmanship badges, and also offer a trophy to be competed for by teams representing the different educational institutions.

(g) Physical drill, marching, camping, tent pitching, making and breaking camp, loading and unloading wagons, camp expedients, field cooking, camp sanitation, first aid to the injured, personal hygiene, and the care of troops in the field will be taught by practice.

(h) Informal talks by selected officers will be given on the following subjects: Use and duties of the different arms and branches of the service (Infantry, Field Artillery, Cavalry, Engineers, Signal Troops, and the Medical Corps); field fortifications, including the laying out, construction, and use of trenches; military bridge building; use of explosives; demolitions; the installation and operation of field lines of electrical information and the use of buzzers, field telephones, and radiotelegraphic apparatus; signal flags, heliographs, and acetylene lanterns, and other apparatus used by Signal Corps organizations in the field; the tactical organization of the military forces of the United States, the reasons therefor and comparison with that of foreign armies; the supply (food and material) of an army and the problems connected therewith; the psychology of war; the true military history of our country—not the illuminated school-book version of our few victories, but the real accounts, as taken from the official records of our many defeats and the reasons therefor; military policy, past and present, the necessity for some sound definite military policy and for the adoption thereof, and the present scheme as worked out by the General Staff of the Army.

(i) The camp will include a practice march of several days' duration, in which, as nearly as possible, such actual campaign conditions of march, bivouac, and combat will be followed as the assumed situation would exact.

(j) To those who successfully finish the prescribed course of instruction of the camp, certificates to that effect will be issued by the War Department, and their names kept on file in the records of said department, with such remarks in each case as may be made by the officers in charge as to degree of efficiency and recommendations as to fitness for future command.

9. In return for the above the students are expected to give their best and most honest endeavor to further the success of the instruction and to gain the best results therefrom. This will be real military work, not play, and only students who come to learn are desired, a correct understanding of the principles involved being considered of more importance in the short time available for instruction than the exercise or movement itself. The minutiæ and exact precision of close-order drill will be insisted upon enough only to insure discipline. Extended-order drill and field exercises are considered most important. Work will be confined as far as practicable to the morning, leaving the afternoons and evenings, with due regard to proper supervision, at the disposal of the student for rest, athletic sports, and recreation.

SELECTION OF CAMP-SITES.

From a military standpoint they must have sufficient level ground for the camp itself and for close-order drills and parades. They must have nearby a fairly rolling, not too heavily wooded, uncultivated terrain suitable for field exercises and maneuvers, without incurring any expense for use or possible claim for damages, and a good target range within marching distance.

From the recreation standpoint they should be in a summer resort region, cool and healthy; should have good swimming, bathing, and fishing advantages, such as a lake, large river, or the seashore; should be in

the neighborhood of summer resorts where parents, relations, and friends may visit and observe the students, and where students who so desire may have proper social entertainment.

11. The camps will be held for five weeks between the early part of July and the middle of August, (1914) the exact dates to be decided upon later. This plan meets with the approval of all University and College authorities heard from on the subject, among whom are the heads of the majority of the larger educational institutions in the country.

It is heartily indorsed by the students attending last year's camp, the greater part of whom have expressed their intention of returning, if possible, in the coming year; and a number of congratulatory letters have been received from parents, dwelling upon the physical benefits derived by their sons from the last camp.

12. Students who are to attend the coming camps are earnestly urged to take, before coming, the antityphoid prophylaxis and to be vaccinated for smallpox. This as a matter of ordinary precaution. Either inoculation will be given, however, free of charge at the camp to those who desire it; but in some cases, particularly in vaccination, temporary sore arms result, with a consequent loss of time, and it is better to have it over with before coming to camp. The typhoid inoculation renders one immune for a considerable period and has been most successful in the Army. To those who cannot afford to take it before coming the free opportunity offered at the camp should be taken full advantage of. It is, however, left entirely optional with the students.

13. Companies will be made up, as far as possible, depending upon numbers, of students from the same or similar institutions. All companies will be commanded by a selected Regular Army officer, or officers, and will be aided by subaltern officers and noncommissioned officers selected from among the students themselves, preference being given to selected students of the previous War Department camps.

The discipline exacted will be strict and just. Students will be on a cadet status; that is, treated with the courtesy due prospective officers, but subject to all rules and regulations of the camp and subject to disciplinary measures for infractions thereof.

14. The students attending camp during the summer of 1913 formed an organization, for which they adopted the name, the Society of the National Reserve Corps of the United States.

The following gentlemen, all of whom have expressed cordial interest in the plan of holding these summer camps, have consented to act as advisory committee of the student organization:

J. G. Hibben, president of Princeton University.
A. L. Lowell, president of Harvard University.
A. T. Hadley, president of Yale University.
G. H. Denny, president of the University of Alabama.
H. B. Hutchins, president of the University of Michigan.
E. W. Nichols, president of Virginia Military Institute.
B. I. Wheeler, president of the University of California.
J. H. Finley, president of the College of the City of New York.
H. S. Drinker, president of Lehigh University.

The students, recognizing the active interest that President Drinker had taken in the camps, and having become personally acquainted with him during his visits to the camps at Gettysburg and Mount Gretna, elected him president of the organization, which position he accepted.

Mr. George H. Gaston, Jr., a graduate of Princeton University of the class of 1913, now taking a postgraduate course at Columbia University, who attended the camp as a student, was elected secretary and treasurer.

The following student-members of the camps were elected an executive committee:

H. A. Murrill, Virginia Military Institute;
C. D. Gentsch, Western Reserve University;
H. B. Perrin, Yale University (graduate);
F. R. Lowell, Yale University;
R. Gillou, University of California;
G. H. Gaston, Jr., Princeton University.

15. Heads of educational institutions are requested to designate some person or persons who will have supervision of applications for attendance

FIFTH U. S. INFANTRY BAND—THIS BAND WILL BE IN ATTENDANCE AT THE NORTHEASTERN CAMP DURING THE ENTIRE PERIOD, 1914.

at camp, who will certify as to moral and physical qualifications, and who will forward the names of such successful applicants, either through the local secretary of the organization referred to in paragraph 14, or direct to "Capt. R. O. Van Horn, General Staff, U. S. Army, Office Chief of Staff, War Department Building, Washington, D. C.," who has been placed by the War Department in charge of the organization of student camps, and who will forward the application to the proper authority.

These applications may be forwarded at any time until just before commencement of camp, or until as many have been received as can properly be taken care of.

Applicants must state full name, age, home address; name of educational institution attending, and address at same; if in high school, applicant must state he is a member of the graduating class.

Applicants must agree to attend for the entire period unless compelled by actual necessity to leave beforehand, and to obey the rules and regulations established for the government of the camp.

They must agree to deposit upon arrival, if not previously done, the sum of $22.50, $17.50 being for payment of their subsistence, and the balance ($5) for the payment for loss or damage to Government property in their possession. If there be no loss or damage this amount ($5) will be returned to students upon the termination of camp.

All applications must be approved by the properly designated college authority, as laid down in the previous paragraph. Only students of certified moral character will be allowed to attend. The required physical qualifications being not so strict as they are in the Army, only an organic disease, or some disability that would prevent marching or that would render the applicant liable to ill effects from the active outdoor life of camp will be considered a disqualification. * * * *

The entire organization of the camps of 1913 and 1914 was placed in the hands of Captain Robert O. Van Horn, General Staff, United States Army, a most competent officer and one who is most deeply interested in the dissemination of popular military knowledge.

The sites selected for the 1914 camps were Burlington, Vermont; Asheville, North Carolina; Ludington, Michigan, and Monterey, California. The time for the camps for the first three extends from July 6 to August 7 inclusive, and for the latter from June 26th to July 31st inclusive.

CHAPTER XVI.

THE SCHOOL OF MUSKETRY.

(Fort Sill, Oklahoma).

"The science of gaining fire superiority, upon which, at the present day, success in battle principally depends, must be from now on a subject thoroughly understood by all, its details carefully worked out, its theoretical principles studied, and a final practical working basis arrived at upon which the entire army can go ahead and prepare themselves uniformly. No one can foretell when the time will come to put our training to the real test of battle, but let us hope that when it does we will have a uniformly disciplined body of men as the result of this teaching."—*Capt. R. O. Van Horn*, General Staff, U. S. Army.

HISTORICAL SKETCH.

Training in musketry dates back almost as far as the invention of this weapon of warfare, but only in comparatively recent years has any effort been made to teach the individual and collective use of small arms in a scientific manner.

In the United States the first system of target practice for the Army was prepared by Capt. Henry Heth, 10th Infantry. This was published in book form and adopted by the War Department in 1858, "for use of troops when armed with the musket, rifle musket, rifle or carbine." This book served the use of our armies during the Civil War.

In 1872 a "Manual for Rifle Practice" was prepared by General George W. Wingate, inspector general of rifle practice of the National Guard (organized militia) of the State of New York. His advice and suggestions were followed by Army marksmen.

The first complete systematic course of instruction in rifle firing for the United States Army was prepared by Colonel T. T. S. Laidley, of the Ordnance Department, under the instruction of the Chief of Ordnance, and was published with the approval of the Secretary of War in 1879. This work led to such excellent results in the target practice of the Army, that in 1883, it was found advisable that a new book be prepared to embody the experience gained in the meantime on this subject. Capt. Stanhope E. Blunt, Ordnance Department, U. S. Army, was designated by the Chief of Ordnance for this work and the result was the publication in 1885 of "Blunt's Rifle and Carbine Firing," which received the approval of the board of officers, of the Lieutenant-General of the Army, and of the Secretary of War.

With two slight revisions by Capt. Blunt, and the change of title to "Firing Regulations for Small Arms," this book was the authorized guide for small-arms practice until April, 1896, when, on account of the

adoption by the Army of the new magazine rifle, a small manual of firing regulations, prepared by a board of officers consisting of Colonel J. C. Bates, Second Infantry; Lieut. Col. Charles A. Wikoff, Nineteenth Infantry, and Captain Marion P. Maus, First Infantry, was published, for temporary use, by order of the Secretary of War.

The progress of the Army in target practice since the publication of Captain Blunt's book, together with the change of arms to the magazine rifle, made a more complete revision of the "Firing Regulations for Small Arms" necessary. Capt. John S. Mallory, Second Infantry, was therefore detailed in February, 1897, by the Major General Commanding the Army, with the approval of the Secretary of War, to make such a revision, and his work, with slight amendments, was approved by a board of officers consisting of Col. J. C. Bates, Second Infantry; Maj. A. R. Chaffee, Ninth Cavalry; First Lieut. R. C. Van Vliet, Tenth Infantry, with Capt. John S. Mallory as recorder, and was published in General Orders, No. 26, Adjutant General's Office, June 11, 1897. The revised work, with some minor changes, having received the approval of the Major General Commanding the Army and the Secretary of War, was then published for the information and guidance of the Army.

From 1898 to 1901, inclusive, the demands of the service precluded the prosecution of systematic target practice, but in 1902 it was resumed, and soon developed the fact that the changed conditions demanded a revision of the existing regulations.

A board of officers, consisting of Maj. James Parker, U. S. Cavalry, assistant adjutant general; Maj. John F. Guilfoyle, Twelfth Cavalry; Maj. William A. Mann, Fourteenth Infantry; Maj. Frederick W. Sibley, Eleventh Cavalry, and Capt. Harry C. Hale, Twentieth Infantry, was therefore convened for the purpose of revising the "Firing Regulations for Small Arms," and the work of this board was approved by the Secretary of War, and issued for the information and guidance of the Army and the organized militia of the United States.

A subsequent revision of the Small Arms Firing Regulations was made by a board of officers and published by authority of the Secretary of War in 1909. This work has in turn been revised and the small arms practice in the United States Army is conducted today under the revision of 1913.

Capt. Joseph B. Batchelor, Jr., of the Twenty-fourth Infantry prepared a volume on "Infantry Fire—Its Use in Battle," in 1892. This volume was not a set of rules and regulations for the government of target practice but more of a scientific discussion of the employment

of rifle fire in action. It was really the forerunner of other scientific treatises on the subject by United States Army officers. A large part of his work was an adaptation of the foreign methods then in existence. In his preface he states:

"The merit of this book lies in the importance of its subject. This has been extensively studied in Europe, but hardly at all here, and yet there is no branch of his profession which more demands the attention of the military student, since none more affects the value of our forces and the fate of our arms."

More recently there have been several valuable articles and some books on this subject, among them a volume by Capt. Henry E. Eames of the Tenth Infantry.

In introducing an article on Musketry in the Infantry Journal (1910), Captain J. N. Pickering, of the 1st U. S. Infantry says:

"Musketry is entirely too large a subject to handle in an exhaustive manner within the limits of this paper. Large books have been written on certain parts of it, and other parts offer inviting fields for other books. This paper contains a brief consideration of its salient features and is not a treatise on the subject in general or in part. Arguments and experiments upon which assertions are based are given with brevity or omitted, and illustrative narrative is reduced to the lowest possible volume."

The above reference is apropos only in that it shows the comprehensiveness of the subject from the viewpoint of a recognized authority. The importance of the subject cannot be overestimated.

Napoleon said:

"The fire is everything."

To gain a complete victory fire superiority must be obtained and retained. It must follow that a subject which bears such a close relation to the ultimate accomplishment sought by an appeal to arms is most worthy of a system of schools which will bring to light all the niceties of the art and science it embraces.

The above have been but straws indicating the direction from which the wind is blowing. The School of Musketry is the direct outgrowth of scientific investigation of this subject, and is the means for working out practical solutions of musketry fire problems.

THE SCHOOL OF MUSKETRY.

A school of Musketry was organized as a territorial division school by authority of General Orders No. 4, Headquarters of the Pacific Division, San Francisco, California, dated February 21, 1907, issued in pursuance of authority received from the War Department at Washington. This school was located at Monterey, California.

The fundamental purpose of the school was to give selected officers and enlisted men of the Pacific Division a higher degree of practical

and theoretical knowledge of instruction in the use of small arms than was practicable to obtain at military posts, with a view of making them better instructors and thereby increasing the firing efficiency of the organizations to which they belong.

The personnel of the school consisted of a commandant, an assistant commandant, two companies of infantry, one machine-gun platoon and enlisted men detailed as students.

It was provided that in addition to the work of the school as an institution for instruction, experiments in such matters as referred to the development of all material pertaining to small arms firing might be, in the discretion of the proper authority, referred to the school for investigation and report.

The set terms began on January 3, April 1, July 6, and October 1, and continued twelve weeks.

The first class began April 1st, 1907, under the direction of Col. Joseph Garrard, of the Cavalry, as Commandant. The extent of the instruction given was necessarily somewhat limited. The instructors had had little time to prepare lectures and there was a shortage of material, but on the whole the experiment had proved a success, the individual "figure of merit" of the class in rifle firing rose from 137.69 to 161.06 and enthusiasm in shooting throughout the territorial division as well as interest in the school was given a new impetus.

Major G. W. McIver (now Lieutenant Colonel and Adjutant General) relieved Colonel Garrard as Commandant in November, 1907. With his administration field firing began to assume important dimensions, and a progressive lecture course was inaugurated. The demands on the school staff by the increasing demand of experimental work referred to the school by the War Department necessitated reduction in the number of classes to three, and an increase in the number of instructors to three.

Beginning in August, 1909, a period of one month in each year was set aside for a machine-gun class. This class consisted of one officer, one sergeant, two corporals and three privates from each machine-gun in the division.

In April, 1911, Lieutenant Colonel S. W. Miller (now Colonel) relieved Major McIver as Commandant. During Colonel Miller's administration the mobilization of our military forces on the Rio Grande so far drew from the troops in that territorial division as to cause a further reduction in the number of classes, but much valuable experimental work was carried to completion and the school so far

gained in recognition by the War Department, that in January, 1913, it was moved to Fort Sill, Oklahoma, where it was known as a "School for Small Arms Firing." In June, 1913, the name was changed to the "School of Musketry," and it was included as a Service School of the United States Army. Unfortunately, immediately after the move to Fort Sill, the Mexican situation again intervened and the battalion of the 19th Infantry which was sent to Fort Sill in February, 1913, for duty with the School of Musketry was immediately ordered to the border. Colonel Miller was shortly after ordered away.

In July, 1913, Colonel Miller was ordered to Europe for study and investigation of the methods at European schools for musketry. The scheme of instruction will not finally be determined until Colonel Miller has completed his investigation, but it is believed that more time will be devoted to combat firing than has been the case in the past. It is felt that the ultimate aim of the school should be the development of leaders capable of handling a firing line in battle.

Fort Sill is admirably located and especially suited for both this school and the School of Fire for Field Artillery, which is also located there. It was first established in 1868 as "Camp Wichita" and was occupied by troops in 1869 and received its present name the same year.

The surrounding country is hilly and mountainous and is interspersed with wide valleys. The military reservation, declared as such by executive order of the President of the United States on the seventh of October, 1871, contains 36 square miles. This gives a varied terrain most excellently adapted for working out problems in musketry as well as in field artillery fire.

Ordinarily the teaching of target practice and firing in general comes plainly within the scope of military training rather than education. However, this School of Musketry has many features which would separate the instruction given from that of "training" and place it under the head of "education." It is true that a large part of the classwork consists in musketry firing but this firing is only used in conjunction with definite problems which call for both theoretical as well as practical solution. The work attempted and performed in its relation to the military is clearly educational.

There are many interesting problems worked out at the Schools of Musketry, and it would be impossible to get a very clear idea as to the character of this work unless a sufficient number of these problems were embodied in this chapter as will cover the scope of the

instruction. These exercises are lettered as "Exercise A," "Exercise B," etc. Exercises down to and including "Exercise P" follow:

EXERCISE "A."

INDIVIDUAL FIRING.

Situation:

An individual (assumed to be a member of an outpost) is informed that a small party of the enemy is in observation in the vicinity of a certain point. The general direction of this point is shown to him. He is then directed to advance to where he can locate the targets, to select a suitable firing point, and by opening a well-directed fire to render their position untenable.

Ammunition: 5 Rounds.

The time of the preparation will be taken from the moment the targets are discovered until the first shot is fired.

Targets:

Falling targets—2 standing and 3 prone. Range 340 yards.

This exercise illustrates the use of concealment while advancing; the finding of obscure targets; the prompt estimation of the distance thereto, and the distribution of fire so that the greatest number of targets may be hit with a limited amount of ammunition.

EXERCISE "B."

PATROL.

Situation:

A small patrol under a non-commissioned officer is sent out under the following orders:

"A small party of hostile infantry has been reported in the vicinity of ..... Locate and drive them back."

Action:

The patrol will advance in the indicated direction. The formation will be in conformity with the requirements of the terrain.

When the targets representing the enemy have been located by the patrol, fire will be opened promptly but *only as directed by the patrol commander.*

In case any member of the patrol exposes himself so that he would be in plain sight from the targets, blank cartridges will be fired from the pit to indicate that the patrol is under fire.

The time for the preparation will be taken from the moment the patrol locates the targets, or the first blank cartridge is fired from the pit (whichever occurs first) to the time the first shot is fired.

This exercise illustrates the location of obscure objectives; quick estimation of distances; the use of the natural features of the terrain for concealment, and the exercise of fire control over a widely dispersed firing party.

Upon the completion of the action, the patrol commander will send a written report of same with sketch to "The Commanding Officer, Company or Troop '.....'," from whom he is assumed to have received his orders.

Ammunition: 10 Rounds.

Targets:

An irregular group consisting of 1 standing, and 2 prone falling targets and 3 prone bobbing targets. (This to be modified so that the total number of figures will equal the number of individuals in the patrol).

The appearances of the bobbing targets will be for periods of ten seconds each with an interval of ten seconds between appearances. The first appearance of the bobbing targets to be immediately after the first shot is fired at the falling targets.

Blank cartridges are fired from the pit only upon notification by phone from the range officer.

Equipment:

In addition to the authorized equipment, the patrol commander is supplied with a pad of the regulation field message blanks. His report will be submitted on these forms.

EXERCISE "C."

OUTGUARD.

An outguard consisting of a non-commissioned officer and five enlisted men is given a specified sector of observation. It establishes a double sentry post. The location of the sentries and the remainder of the outguard will be in conformity with the requirements of the terrain.

Action:

Upon the first appearance of the enemy as represented by the targets the sentries will endeavor to locate them and will notify the outguard commander at once as to the nature of the targets, etc.

The outguard commander then makes the proper disposition of the outguard to open and maintain a vigorous fire upon the enemy.

This is a collective exercise in which fire discipline and fire control are illustrated. No shots will be fired except by direction of the outguard commander, who must exercise care that his commands are correctly given and in a tone and manner that shall insure obedience.

Ammunition: 10 Rounds.

Targets:

Eight kneeling figures on beam disappearing apparatus.

These will be made to appear for periods of 30 seconds each with an interval of 30 seconds between appearances. Their first appearance will be indicated by the firing of blank cartridges from the pit.

Range ..... yards.

EXERCISE "D."

OBSERVATION OF SHOT STRIKE, AND ADJUSTMENT OF FIRE.

One platoon to fire from one position, range unknown (approximately 1,100 yards).

For the adjustment of fire, the target to be a white flag or some feature of the ground.

An instructor to command the firing line and the part of the class not firing to observe the shot strike and note the sight corrections which he deems necessary to throw the center of the shot group on the target. The elevations used in the various volleys to differ by about 500 yards, some over, some short. Before firing a volley the instructor will announce the elevation and windage used, and after each volley will point out the peculiarities of the shot strike.

To further instruct in adjusting, the sight reading will be given to the firing section secretly, and members of the class be required to observe the shot strike and announce sight corrections.

Ammunition: 10 Rounds.

EXERCISE "E."

GRAZING AND INDIRECT FIRE.

One platoon to fire from one position, range unknown (approximately 1,300 yards).

Target to consist of several lines of silhouettes placed behind a ridge. Two flags on the crest mark the limits of the point of aim, and fire will be directed upon this crest in such a manner that the mean trajectory will just clear the crest.

Knowing the range, the number of rounds fired, the arrangement of targets, and the inclination of the reverse slope, this exercise is valuable in illustrating the power of indirect fire and the slope necessary to afford protection for supports and reserves.

Ammunition: 20 Rounds.

EXERCISE "F."

OFFICERS' PATROL.

Situation:

A strong patrol under an officer is sent out under the following orders:

"1—Small parties of the enemy are reported about half a mile from our present position, and in the direction of Monterey.

"2—You will find him and by attacking determine his location and dispositions."

Action:

The patrol will advance in the indicated direction. The formation will be in conformity with the requirements of the terrain.

When the targets representing the enemy have been located by the patrol, fire will be opened promptly, but *only as directed by the patrol commander.*

In case any member of the patrol exposes himself so that he would be in plain sight from the targets, blank cartridges will be fired from the pit to indicate that the patrol is under fire.

The time for the preparation will be taken from the moment the patrol locates the targets, or the first blank cartridge is fired from the pit (whichever occurs first) to the time the first shot is fired.

This exercise illustrates correct methods of advance over difficult ground; the location of obscure objectives; quick estimation of distances; the use of the natural features of the terrain for concealment, and the exercise of fire control over a widely dispersed firing party.

Upon the completion of the action the patrol commander will send a written report of the same with sketch to "The Commanding Officer, Company or Troop '.....'," from whom he is assumed to have received his orders.

Ammunition: 10 Rounds.

Targets:

Eight kneeling silhouettes on a beam, one yard edge to edge, two prone falling targets, one standing falling target.

The beam targets will appear for 30 seconds and at 30 second intervals.

Blank cartridges are fired from the pit only upon notification by phone from the range officer.

EXERCISE "G."

PLATOON ON THE OFFENSIVE.

Situation:

A platoon of 16 men under command of an officer is ordered to attack the enemy in a certain position. The general location of the targets is indicated to the platoon commander.

Action:

The platoon is assigned certain lateral limits within which its advance is to be confined.

At the first firing point one clip will be fired and the advance will be resumed under the assumption that fire superiority has been gained.

On resuming the advance the conduct of the platoon will be regulated by the requirements imposed by the terrain and the targets.

Ammunition: 10 Rounds.

Targets:

The distant target or main objective will consist of 8 kneeling figures at an interval of one yard from edge to edge. A second target consisting of 8 prone figures (one yard edge to edge) on beam disappearing apparatus is made to appear when the advance is made from the first firing point.

The main objective is outside and the second target inside of battle range.

The appearance of the second target (thirty seconds up and thirty seconds down) is controlled from the firing point.

This exercise illustrates the advantage of using the battle sight in emergencies when the range will permit.

EXERCISE "H."

PLATOON ON THE OFFENSIVE.

Situation:

A platoon of 16 men under command of an officer is ordered from an assumed position in support to a position on a company firing line. The rest of the firing line is imaginary, and the limits within which the platoon may operate are designated by the chief umpire.

Action:

The chief umpire will represent the company commander by giving instructions as to the time to advance the platoon, and the distance which it will advance only. In other respects the functions of command lie wholly with the platoon commander. During the advance the platoon will attack any objectives which present themselves.

Ammunition: 15 Rounds.

Targets:

The distant target, or main objective, will consist of 8 kneeling silhouettes with an interval of one yard from edge to edge. Range about 50 yards greater than in exercise "G." The second target will consist of 8 kneeling silhouettes on a sled. Range about 300 to 350 yards.

The advance is so arranged that about 10 rounds per man will be fired at the main objective from two firing positions. The moving targets to appear during the advance from the second firing position.

EXERCISE "I."

PLATOON ON THE DEFENSIVE.

Situation:

A platoon composed of sixteen men under an officer is assigned a portion of a defensive position. They are ordered to intrench and drive back an enemy who is expected to advance and come into view ten minutes after the position is first occupied.

Action:

One end of his trench location is pointed out to the officer, and the direction from which he may expect an attack. He then lays out his trench and proceeds to construction without delay. While the work of construction is going on the officer will make use of his range finder in getting the range to prominent points in front.

At the expiration of ten minutes he will be prepared to immediately fire upon any targets that come into view. More than one group will appear at various times and places.

This exercise illustrates the construction of "hasty cover" (see paragraph 589, Infantry Drill Regulations, 1911), and its use as a fire trench; using a rest for the musket; fire discipline; fire control, and a maximum rapidity of effective fire under the most favorable conditions.

Ammunition: 25 Rounds.

Targets:

No. 1. 8 kneeling silhouettes 1 yard apart. Range 880 yards.
No. 2. 8 kneeling silhouettes 1 yard apart. Range 690 yards.
No. 3. 8 kneeling silhouettes 1 yard apart. Range 530 yards.
No. 4. 8 prone silhouettes 1 yard apart. Range 255 yards.

The targets will appear in succession representing an advancing enemy. Each target will be exposed one (1) minute. One (1) minute will elapse between the disappearance of one group and the appearance of the next.

The number of rounds actually fired at each group will be ascertained between appearances of the targets.

Equipment:

In addition to the authorized equipment the platoon will carry 9 shovels, 3 picks and 2 axes of the field intrenching pattern.

EXERCISE "J."

COMPANY ON THE OFFENSIVE.

Situation:

A company consisting of 3 or 4 platoons commanded by officers is operating as the first line of a battalion attack. The rest of the battalion is imaginary, except that the chief umpire will represent the battalion commander so far as reports, etc., are concerned.

Action:

The company is formed under cover and advances in an indicated direction. The company commander will attack such objectives as present themselves with such force as he deems necessary. Particular attention will be given to providing covering fire when one portion of the line is exposed. If falling targets are encountered the advance will not be resumed until half of them are down. The company commander will confine himself to the proper functions of his position, and will permit and require his platoon commanders fully to command their platoons. This exercise is not intended to represent the development of an attack. Such development is assumed to have been made, and the exercise is to show a determined attack within the zone of effective fire. The line of advance is limited to a given front and such limits will be pointed out to the company commander.

Ammunition: 30 Rounds.

Targets:

1. 16 stationary, 16 beam, kneeling. Range 760.
2. 16 beam, prone. Range 480 to 400.
3. 20 prone, falling. Range 400 to 300.
4. 16 moving, kneeling, on two sleds, tandem. Range 350 to 300.

EXERCISE "K."

FIRE OF POSITION.

Situation:

A company is ordered to occupy a certain position and fire on a distant objective which is indicated to the company commander.

Action:

This exercise is in the nature of a demonstration and, except that the true ranges are unknown, it contains no elements of surprise or uncertainty such as are common in most field firing exercises.

There will be two or more firing points.

At each firing point two series of firings will be made.

In the first series—of ten rounds—the company commander will attempt to adjust the fire by means of one or two ranging volleys and will then fire the balance of his ten rounds "at will."

Another officer who has not been present during the first firing will be designated to command the company during the second series.

In the second series—likewise ten rounds—adjustment of fire will not be attempted, but recourse will be had to combined sights, two or more readings of the back sight being used, depending on the range.

This exercise illustrates the direction and control of fire, fire discipline, range finding, observation of fire and adjustment of fire. It also illustrates the use of combined sights on a distant objective and may furnish a basis of comparison between the two methods used.

Ammunition: 50 Rounds.

Targets:

The target will consist of four rows of kneeling silhouettes arranged in column. There will be 16 targets in each row with an interval of 1 yard from edge to edge. There will be a distance of 10 yards between rows.

The nature of the soil on this firing ground is particularly favorable for detaining "dust" upon impact, and is therefore most favorable for the observation and adjustment of fire. Unless consideration is given to this fact, this exercise may convey erroneous impressions as to the ease with which fire may be adjusted on a distant objective.

Combined sights are used to compensate for errors in the determination of the range.

Experiments at the Musketry School show these errors to average 15% for trained estimators.

Therefore, to insure the target lying within the beaten zone, said zone must be increased in depth to at least twice the probable error in estimation of the range.

Range—Yards	Approximate—Total depth of beaten zone in yards for average shots.	Average error in the estimation of ranges 15%.
500	800	75
1000	400	150
1500	300	225
2000	250	300
2500	200	375

From the above table it is seen that but one sight reading is called for up to 1,000 yards.

At 1,500 yards two sight readings are indicated, differing from each other by 150 yards.

At 2,000 yards three sight readings are indicated, differing from each other by 175 yards.

At 2,500 yards four sight readings are indicated, differing from each other by 183 yards.

EXERCISE "L."

AN INFANTRY ATTACK SUPPORTED BY MACHINE GUNS.

Situation:

An advance guard composed of two companies of Infantry and one machine gun platoon is en route from MONTEREY to CASTROVILLE along the line of the SEASIDE-CASTROVILLE county road.

The advance guard is instructed to attack vigorously if the enemy is encountered.

The eastern boundary of the right of way of the Southern Pacific Railroad is assumed to be an impassable obstacle.

Action:

When the point passes a position about a mile north of the Eucalyptus Nursery blank cartridges will be fired to indicate that the advance guard has been fired upon by the enemy.

The subsequent action of the advance guard will be in conformity with the requirements imposed by the targets and the terrain.

Upon the completion of the exercise each officer having command will submit a report in writing to the advance guard commander.

Ammunition: 60 Rounds.

Targets:

Various forms of targets representing the enemy in a defensive position.

This exercise illustrates the development of an attack according to the location and strength of the enemy as represented by the targets. In addition to the principles demonstrated in preceding exercises, it also shows the necessity of conserving ammunition, the exercise of the functions of command in the various grades, the preparation of battle reports by subordinate commanders and the action of machine guns in support of an infantry attack.

EXERCISE "M."

NIGHT FIRING WITH THE MUSKET.

A detachment of 2 officers and 12 enlisted men placed on suitable ground are shown a target and directed to find the range and fire 15 rounds per man. No particular tactical principle is involved, the idea being to develop and illustrate various methods of making the musket sights visible, enabling aimed fire to be delivered. The exercise also makes evident the difficulties attending the attempt to obtain results when firing at night without disclosing our own position by showing lights. In this exercise no restriction is placed upon the use of lanterns, etc.

Targets:

Five prone silhouettes placed one yard from center to center. In front of this line a fire is made. Range 400 to 600 yards.

EXERCISE "N."

NIGHT FIRING WITH MACHINE GUNS.

Situation:

A machine gun platoon is posted as part of an outpost which is established in the late afternoon and which it is purposed to maintain until the following morning. The machine gun platoon is ordered to open a vigorous fire on such parties of the enemy as may attempt to approach the outpost through a designated defile.

Lacking a natural defile, an artificial one may be represented by placing flags to indicate its boundaries.

Action:

The guns being in place, fire is adjusted (in daylight) on the defile by means of ranging shots.

Without changing the direction of the axis of the bore, the line of sight is now brought to bear upon an aiming point which is established in front of the piece and to one side of the line of fire. The sight reading is then noted.

Should the piece now be disturbed, fire may be readily adjusted again upon the defile even at night by setting the sight at the reading noted and bringing the line of sight to bear upon the aiming point.

After the adjustment of fire has been completed the targets will be placed in the defile.

After nightfall it is assumed that information is received that the enemy is approaching through the defile.

The guns then open fire, using the aiming point as above described.

This exercise illustrates an adaptation of the powers of the machine gun to defensive night work.

Ammunition: 250 Rounds per Gun.

Targets:

A number of silhouettes arranged to represent a column of fours passing through the defile.

EXERCISE "O."

OFFICERS' INDIVIDUAL.

(REVOLVER.)

1. You are the captain of a company of infantry proceeding along a trail in pursuit of a semi-civilized enemy.
2. Word having been sent back to you that suspicious signs of the enemy are found, you hasten forward to the point and are in advance of the company at the beginning of the exercise.
3. Arms: 1 Colt Revolver, Cal. 38.

Ammunition: 20 Rounds.

EXERCISE "O" 2.

OFFICERS' INDIVIDUAL.

(PISTOL.)

1. You are the captain of a company of infantry proceeding along a trail in pursuit of a semi-civilized enemy.
2. Word having been sent back to you that suspicious signs of the enemy are found, you hasten forward to the point and are in advance of the company at the beginning of the exercise.
3. Arms: Colt Automatic Pistol, Cal. 45.

Ammunition: 15 Rounds.

EXERCISE "P."

LOCATING ENTRENCHMENTS.

Situation:

A company of infantry forming a part of a line of battle on the offensive, is under strong fire from an enemy located upon a distant ridge.

No enemy is seen and his trenches are difficult to locate owing to the dense growth of vegetation.

The direction of the enemy is known by the bullet marks upon the ground in front of the offensive lines, and by the sound of firing.

Action:

The Company Commander will locate the enemy, determine the range, direct his company's fire upon the enemy, and assist the general line of battle in obtaining the fire superiority.

Ammunition: 30 Rounds.

This exercise illustrates:

(1) The difficulty of fire direction when no defined aiming points are discernable.

(2) Use of auxiliary aiming points.
(3) Sweeping of areas with infantry fire.

Targets:

30 "F" targets placed one per yard of trench, and each presenting an area equal to that of a man with a campaign hat firing from a standing trench.

The composition of an effective army is largely infantry. The effectiveness of the infantry fire has been the deciding factor in winning or losing most battles. The delivery of infantry fire is not accidental. It might be better to say that the delivery of infantry fire should not be accidental. Everything that enters into it from the "man behind the gun" to the directing head should act in accordance with known scientific principles. These principles are not determined by office calculations. They may be learned best on the field of action, but in the absence of this most trying of schools, they can be determined with a fair degree of accuracy by simulating the actual battle conditions as near as may be in times of peace.

This is the principal function of the School of Musketry. The methods employed are largely the problem method, such as above given. There are numerous details of instruction to be given which are not a part of the problem itself, but a thorough knowledge of which is necessary to a satisfactory solution of them. These details are worked out progressively in accordance with a fixed curriculum. While rather lengthy yet it is thought to be sufficiently important to include a program of the exercises, week by week, for a period of several months. The arrangement of the subjects and the general routine may be changed from time to time for subsequent sessions, but the essentials involved remain:

SCHOOL OF MUSKETRY.

Class, September-December.

PROGRAM FOR WEEK ENDING SEPTEMBER 21ST.

Day	7:00-7:30 a. m.	8:15-9:15 a. m.	9:30-10:30 a. m.	10:45-11:45 a. m.	1:30-3:00 p. m.
16	* *	* *	General Instruction—Assembly Room.	Lecture: Sights and Sighting.	Musket Sighting Drill.
17	Calisthenics.	Inspection of Arms and Equipment.	Revolver Nomenclature—Assembly Room.	Musket Position and Aiming.	Musket Sighting Drill.
18	"	Musket Nomenclature.	Revolver Nomenclature.	"	* * *
19	"	"	"	"	Musket Sighting Drill.
20	"	"	"	"	Lecture: The Musket.
21	Inspection—8:00 a. m. Uniform; Dress. Dismounted, under arms.		9:00 a. m. Revolver Nomenclature.	10:15 a. m. Musket Position and Aiming.	* * *

PROGRAM FOR WEEK ENDING SEPTEMBER 28.

Day	7:00-7:30 a. m.	8:15-9:15 a. m.	9:30-10:30 a. m.	10:45-11:45 a. m.	1:30-3:00 p. m.
23	Calisthenics.	Lecture: Measurement of Musket Barrels.	Automatic Pistol Nomenclature. Assembly room.	Musket Position and Aiming Drill.	Field Telephone and Field Installation Assembly Room.
24	"	Musket Nomenclature.	Revolver S. A. F. M. 1909, Cav. D. R. 1909.	"	Machine Gun, Calibrating, Sub-Target Gun, Display Board, Field Telephones, Reloading.
25	"	"	"	"	* * * *
26	"	"	Revolver Position and Aiming Drill.	"	Machine Gun, Calibrating, Sub-Target Gun, Display Board, Field Telephones, Reloading.
27	"	"	"	"	"
28	Inspection, 8:00 a. m. Uniform: Service C, Occasion 2.		" (9:00 a. m.)	" (10:15 a. m.)	* * * *

PROGRAM FOR WEEK ENDING OCTOBER 5.

Day	7:00-7:30 a. m.	8:15-9:15 a. m.	9:30-10:30 a. m.	10:45-11:45 a. m.	1:30-3:00 p. m.
30	* * * * Muster 7:00 a. m. Post order.	Range Firing 8:15 a. m.			Machine Gun, Calibrating, Sub-Target Gun, Display Board, Field Telephones, Reloading.
1	Calisthenics.	Lecture: Cleaning and Care of the Musket	Revolver Position and Aiming Drill.		"
2	"	Lecture: Adjusting the Musket.	"		* * * *
3	"	Lecture: Small Arms Ammunition.	Machine Gun, Calibrating, Sub-Target Gun, Display Board, Field Telephones, Reloading.		Revolver: Grouping, (Holding Exercise.)
4	"	Lecture: Estimating Distance by Eye.	"		"
5	Inspection, 8:00 a. m. Uniform: Dress, dismounted, under arms.		9:00 a. m. Estimating Distance.	(10:15 a. m.)	* * * *

PROGRAM FOR WEEK ENDING OCTOBER 12TH.

Day	7:00-7:30 a. m.	8:15-9:15 a. m.	9:30-10:30 a. m.	10:45-11:45 a. m.	1:00 p. m.
7	Calisthenics and 1st Squad Hurling Hand Grenades.	Lecture: Range Finders 187.	Machine Gun, Calibrating, Sub-Target Gun, Display Board, Field Telephones, Reloading.	Demonstration: Ellis Automatic Target.	Revolver: Finding Point of Aim. 30 rounds.
8	Calisthenics and 2d Squad Hurling Hand Grenades.	Lecture: Weather, 691.	Range Finders.	Gallery Practice.	"
9	Calisthenics and 3d Squad Hurling Hand Grenades.	Musket: Sight Adjustment.	Estimating Distance.	"	* * *
10	Calisthenics and 4th Squad Hurling Hand Grenades.	"	"	"	Revolver: Finding Point of Aim. 30 rounds.
11	Calisthenics and 5th Squad Hurling Hand Grenades.	Lecture: Revolver.	"	"	Revolver: Instruction Practice. 30 rounds.
12	Inspection 8:00 a. m. Occasion 2.	Uniform Service, C.	(9:00 a. m.)	" (10:15 a. m.)	* * *

PROGRAM FOR WEEK ENDING OCTOBER 19TH.

Day	7:00-7:30 a. m.	8:15-9:15 a. m.	9:30-10:30 a. m.	10:45-11:45 a. m.	1:00 p. m.
14	Calisthenics and 6th Squad Hurling Hand Grenades.	Lecture: Rate of Fire. 695.	Estimating Distance.	Musket: Gallery Practice.	Revolver: Instruction Practice. Slow Fire. 30 rounds.
15	Calisthenics and 7th Squad Hurling Hand Grenades.	Lecture: Adjustment of Fire. 733.	Range Finding.	"	Revolver: Instruction Practice. Timed Fire. 30 rounds.
16	Calisthenics and 8th Squad Hurling Hand Grenades.	Lecture: Influence of the Ground on Fire Effect. 569.	Estimating Distance.	Range Finding.	* * *
17	Calisthenics.	8:15 a. m., Musket; *New Course, Table 1.			Revolver: Instruction Practice. Rapid Fire. 20 rounds.
18	"	8:15 a. m., Musket; New Course, Tables 1 and 2.			Revolver: Instruction Practice. Timed Fire. 20 rounds.
19	Inspection, 8:00 a. m. Uniform: Dress, dismounted.		9:00 a. m., Musket: New Course, Table 2.		* * *

*"Musket, New Course," refers to New Firing Manual.

PROGRAM FOR WEEK ENDING OCTOBER 26TH

Day	8:00 a. m.	1:00 p. m.	3:00-4.00 p. m.
21	Musket, New Course, Table 2.	Revolver: Instruction Practice, Timed and Rapid Fire. 40 rounds.	Estimating Distance.
22	" " " Table 3.	"	Range Finding.
23	" " " Table 3.	* * *	* *
24	" " " Table 1.	Revolver: Instruction Practice, Timed and Rapid Fire. 40 rounds.	Estimating Distance.
25	" " " Table 1.	Revolver: Record Practice. 40 rounds.	Range Finding.
26	Inspection, 8:00 a.m. Uniform: Service, C. Occasion 2. / 9:00 a. m. Musket, New Course, Table 2.	* * *	* *

PROGRAM FOR WEEK ENDING NOVEMBER 2D.

Day	8:00 a. m.	1:00 p. m.	3:30 p. m.
28	Musket, New Course, Table 2.	Automatic Pistol: Slow Fire, 25 and 50 yards. 20 rounds.	Estimating Distance.
29	" " " Table 2.	Automatic Pistol: Bobbing Target. 5 rounds.	Range Finding.
30	" " " Table 3.	* * *	* * *
31	" " " Table 3.	Automatic Pistol: Moving Target. 10 rounds.	Estimating Distance.
1	Musket: Qualification Course, Record Practice, Table 4.	"	Range Finding.
2	Inspection: 7:30 a. m. Uniform: Dress, dismounted. / 8:00 a. m. Musket: Qualification Course, Record Practice, Table 4.	* * *	* * *

PROGRAM FOR WEEK ENDING NOVEMBER 9TH.

Day	8:00 a. m.	1:00 p. m.
4	Musket: Long Range Practice, Table 5.	Officers: Proficiency Test Regulations. Enlisted men: Estimating Distance.
5	" " " " " "	Officers: Proficiency Test Regulations. Enlisted men: Range Finders.
6	" " " " " "	* * *
7	Experimental Firing: Establishing Individual Standard.	Officers: Proficiency Test Regulations. Enlisted men: Estimating Distance.
8	Instruction Practice: Squad Competition, (Competition rules). 500 and 600 yards. Timed Fire.	Officers: Proficiency Test Regulations.
9	Inspection, 8:00 a. m. Uniform: Service C, Occasion 2. 9:00 a. m. Estimating Distance.	* * *

PROGRAM FOR WEEK ENDING NOVEMBER 16TH.

Day	7:30 a. m.	1:30 p. m.
11	March to Camp at Gigling, Calif., and estimating distance en route. March at 7:00 a. m.	Ex. A and Nomenclature, 1, 2, 3 squads; Range Finders, 4, 5, 6 squads; Machine Guns, Packing, 7, 8 squads.
12	Ex. 1A, 10 men 1st squad and 4th squad; 2A, 5th squad; 3A, 6th squad. Machine Guns, 10 men 1st squad, and 2, 3 squads. Range Finders, 7th and 8th squads.	Ex. 1A, 8th squad; 2A, 5th squad; 3A, 7th squad; Machine Guns, 4th and 6th squads; Range Finders, 1, 2, 3 squads.
13	Ex. 1B, 1, 2, 3, 4, 5, 6, 7, 8, firing orders; 3B, 9, 10, 11, 12, 13, 14, 15, 16, firing orders; 1A, 8th squad; Pack outfit, M. G. 6th squad; Range Finders, 7th squad, except 2 men.	Ex. 1B, 9, 10, 11, 12, 13, 14, 15, 16, firing orders; 3B, 1, 2, 3, 4, 5, 6, 7, 8, firing orders; Pack outfit, Machine Guns, 17, 18, 19, 20, 21, 22, 23, 24, firing orders.
14	Ex. 1B, 17, 18, 19, 20, 21, 22, 23, 24, firing orders, 3B, 21, 22, 23, 24, 17, 18, 19, 20, firing orders; 1C, 1, 2, 3, 4, 5, 6, 7, 8, firing orders; Pack outfit, Machine Guns, 9, 10, 11, 12, 13, 14, 15, 16, firing orders.	Ex. 1C, 15, 16, 17, 18, 19, 20, 21, 22, firing orders; 2B, 1, 2, 3, 4, 5, 23, 24, firing orders; Pack outfit, Machine Guns, 6, 7, 8, 9, 10, 11, firing orders.
15	Ex. 1C, 9, 10, 11, 12, 13, 14, 23, 24, firing orders; 2B, 6, 7, 8, 15, 16, 17, 18, 19, 20, 21, 22, firing orders; Pack outfit, Machine Guns, 1, 2, 3, 4, 5, firing orders.	Ex. O, 13, Officers. 3C, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, firing orders; Machine Gun Firing, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, firing orders.
16	Ex. O, Officers, 3. 3C, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, firing orders; Machine Gun Firing, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, firing orders.	* * * *

PROGRAM FOR WEEK ENDING NOVEMBER 23D.

Day	7:30 a. m.	1:30 p. m.
18	Ex. 2C, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, firing orders; O2, Officers, 11; Machine Gun Firing, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, firing orders.	Ex. 2C, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, firing orders. O2, Officers, 5. Machine Gun Firing, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, firing orders. *Night:* Ex. M, 1, 2, 3, 4, 5, 6, 7, 8, squads; M2, 1 squad with own rifles; 2 squads with Maxim Silencers, Type 1, and 1 Squad with Maxim Silencers, Type 2.
19	Ex. F, 1, 2, 3, 4, 5, 6, firing orders (Patrols); Machine Gun Drill, 7, 8, 9, 10, firing orders (Patrols).	Ex. F, 7, 8, 9, 10, patrols; Range Finding, 4, 5, 6, patrols; Machine Gun Drill, 1, 2, 3, patrols.
20	Ex. D, All officers and 1, 2, 3, 4, 5, 6, 7, 8 squads. E, All officers and 1, 2, 3, 4, 5, 6, 7, 8 squads.	Ex. G, All officers and 1, 2, 3, 4, 5, 6, platoons; Machine Gun Drill, all men not assigned to platoons in Exercise G. *Night:* Firing by Machine Gun Platoon, all officers and men without arms.
21	Ex. H, All officers and 1, 2, 3, 4, 5, 6 platoons. All other enlisted men without arms as observers.	Ex. I, Platoon on the defensive, all officers and 1, 2, 3, 4, 5, 6, 7, platoons. Firing with Telescopic Sights, Lt. Meals and all men not assigned to platoons.
22	Ex. I, All officers and 8th platoon. J, All officers and 1st and 2d companies.	Ex. K, All officers and 1st and 2d companies.
23	Ex. P, All officers and 1, 2, 3, 4, 5, 6, 7, 8 squads.	• • • •

PROGRAM FOR WEEK ENDING NOVEMBER 30TH.

Day	7:30 a. m.	1:30 p. m.
25	Ex. L, All officers and 1, 2, 3, 4, 5, 6, 7, 8, squads, and Machine Gun Platoon, 12th Infantry.	Preparation of Student Officers' exercises.
26	Preparation of Student Officers' exercises.	Execution of Student Officers' exercises—Pistol, Officers' patrol, and outguard.
27	Student Officers' exercises, company on the offensive.	March to Presidio of Monterey, Calif.
28	* (Thanksgiving Day.) * *	* * * *
29	* * * * *	* * * *
30	Examination of Student Officers.	* * * *

PROGRAM FOR WEEK ENDING DECEMBER 7TH.

Day	A. M.	P. M.
2	Examination of Enlisted Students.	* * *
3	* * *	* * *
4	* * *	* * *
5	* * *	* * *
6	Discussion of Examination Questions.	* * *
7	Presentation of Certificates of Proficiency.	* * *

CHAPTER XVII.

SCHOOL OF FIRE FOR FIELD ARTILLERY.

(Ft. Sill, Okla.).

"War is an occurrence to which all nations are subject, democratic nations as well as all others. Whatever taste they may have for peace, they must hold themselves in readiness to repel aggression."—*De Tocqueville.*

HISTORICAL SKETCH.

Schemes for a School of Fire for Field Artillery had been talked of by Army authorities for some time prior to the Spanish-American War but difficulties of various kinds arose preventing the carrying out of these plans. However, in the fall of 1908, Captain Dan. T. Moore, of the Field Artillery, U. S. A., was sent by the War Department to the German School of Fire at Juterbog and spent two years there. Captain Moore also visited similar schools in England and all of the other prominent continental powers. On his return in the fall of 1910, he was appointed a member of a board for the formulating of detailed plans for a School of Fire for Field Artillery. Due to exigencies of the service the members of the board were constantly changing, so that, under the peculiar circumstances, and the fact of his previous study, Captain Moore was in reality the author of the plans of the School and is its real founder. He was appointed commandant in July, 1911, and has continued in that position since. First Lieutenant Ralph McT. Pennell, Fifth Field Artillery, U. S. A., is secretary of this newly organized institution.

The School of Fire for Field Artillery is located at Fort Sill, Oklahoma, a few miles from the town of Lawton. (See Chapter XVI.)

The object of this school is to give practical instruction in Field Artillery fire, with such theoretical instruction as may be necessary to the needs of the school which is given concurrently with the practical instruction.

The regulations prescribing the organization of the school, and the rules governing it, emanate from the War Department at Washington.

The personnel of the school consists of the commandant, the school staff, the school detachment, the instruction batteries, and

PRACTICAL INSTRUCTION AT THE SCHOOL OF FIRE FOR FIELD ARTILLERY, FT. SILL, OKLAHOMA.

officers and men detailed for the course of instruction. The school staff consists of all officers not students on duty with the school.

The commandant is selected and detailed by the Secretary of War. In case of the absence or disability of the commandant the senior officer of the school acts as commandant.

THE COMMANDANT.

(a) The administration of the school is intrusted to the commandant. The appropriations for its support and for the purchase of school property is disbursed only on vouchers approved by him.

(b) He makes application for the detail of officers for the staff of the school and assigns them as secretary, senior instructors, and instructors in the school, as may be necessary.

(c) He submits not later than August 31 of each year a report regarding the progress and needs of the school, and before August 1 of each year a detailed program of instruction covering the course to be given during the year. When approved by the Chief of Staff this program is sent to the post commander, Fort Sill, Oklahoma, with authority to publish it for the information and guidance of the officers on duty at the school.

(d) He supervises the training of the instruction batteries and the methods of instruction in the school courses. Upon the relief of any officer from duty with the school, he forwards to The Adjutant General of the Army, through the commanding officer, Fort Sill, Oklahoma, a detailed report as to the character of the work done by the officer.

THE SECRETARY.

The secretary is the custodian of the books and property and disburses the funds of the school. He conducts the correspondence of the school, and issues the orders and instructions of the commandant.

SENIOR INSTRUCTOR.

The senior instructor, under the supervision of the commandant, has charge of the instruction work and of the training of the instruction batteries. He has charge of the preparation of the firing records, and of the collection and tabulation of all statistical data obtained at target practice.

INSTRUCTORS.

The instructors have charge of the instruction work. When practicable, instructors are senior in rank to student officers, but whether senior or junior, instructors in the execution of their duties must be accorded the respect due to their position.

All courses of instruction at the school comprise practical exercises, problems, research work, conferences, and lectures. Each firing practical exercise, or problem is followed by a field critique, and a detailed critique is held after each firing, as soon as the target reports can be prepared.

The following courses are prescribed:

COURSE A.

For captains and lieutenants of field artillery and such officers of the infantry and cavalry as may be ordered to attend by the War Department.

COURSE B.

For field officers of field artillery.

COURSE C.

For noncommissioned officers of field artillery.

COURSE D.

For officers of the field artillery organizations of the organized militia, under regulations prescribed by the Secretary of War.

Course A:

Target practice and the tactical use of field artillery, as far as the occupation of position is concerned.

Study of the organization of the personnel, matériel, and ammunition supply of foreign services in comparison with our own.

Reconnaissance and panoramic sketching.

Ammunition supply service.

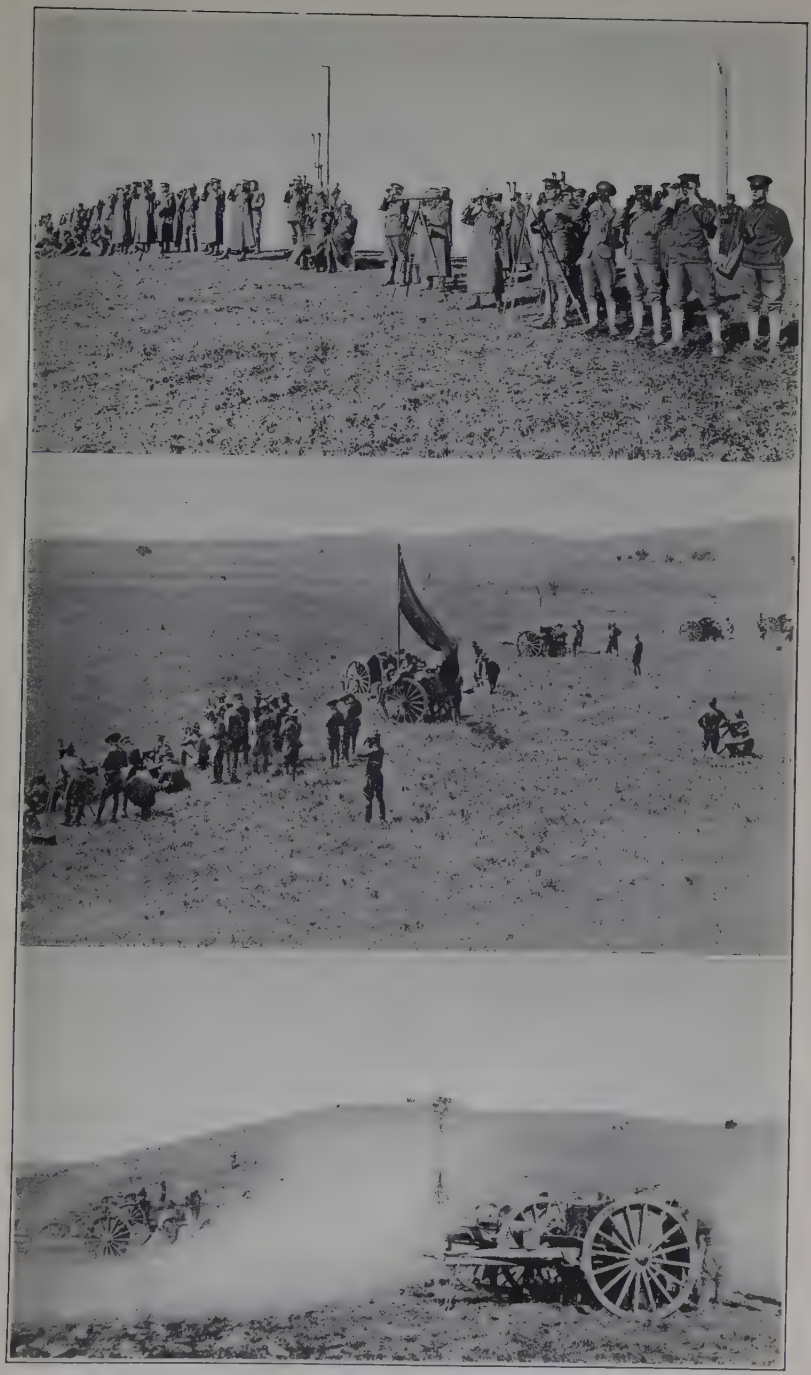
Practical ballistics.

Course B:

Duties of artillery commanders.

Target practice.

Reconnaissance and occupation of positions, in accordance with concrete tactical problems.



PRACTICAL INSTRUCTION AT THE SCHOOL OF FIRE FOR FIELD ARTILLERY, FT. SILL, OKLAHOMA.

Fire direction for the organization of which their rank gives them command.

Ammunition supply service.

Course C:

Setting up and operation of targets.

Observation of fire.

Sketching and scouting.

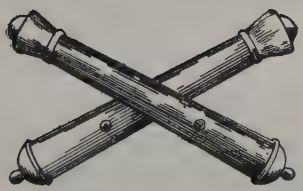
Range finding, use of instruments, and such other instruction as the commandant may find necessary in individual cases.

Course D:

Such parts of Courses A and B as may be prescribed by the commandant of the school.

Officers and enlisted men who have completed any course satisfactorily are furnished with a certificate to that effect, signed by the commandant of the School of Fire, and duly recorded by the secretary.

The School of Fire for Field Artillery is governed by the rules of discipline prescribed by Army Regulations and by its own special regulations. It is exempted from the control of department and division commanders in all that pertains to the courses of instruction, or its separate organization and administration as a school, except that correspondence with officers on duty with the school is conducted through the commanding officer of Fort Sill.



CHAPTER XVIII.

THE SIGNAL CORPS AVIATION SCHOOL.

(San Diego, California).

"There are admittedly advantages in a policy of postponing the development of aeroplanes for naval and military purposes, and of leaving the pioneer work to private enterprise and to foreign nations, but it is clear that aeroplanes have now to a great extent passed out of the experimental stage as regards their employment in warfare, and an active and progressive policy has therefore become imperatively urgent."

HISTORICAL SKETCH.

On December 13, 1913, the Aviation School of San Diego, California, for theoretical and practical instruction in aviation was designated in orders from the War Department as the Signal Corps Aviation School.

This School is the newest of all Army schools, and owing to this fact the authorities have deemed it inexpedient to draw up as yet a definite set of rules and regulations for its government as has been done, for example, at the School of the Line, the Army Staff College, etc.

The course of instruction is both practical and theoretical. The practical course takes the beginner and carries him, under competent instructors, until he becomes a finished cross country flyer. The theoretical course takes up the subjects of aero-mechanics, aeroplane design as applied to aeronautics; theory of propellers; theory, operation, maintenance and repair of internal combustion motors; aero-topography and reconniassance and radio-telegraphy.

The theoretical courses are given by lectures. Among the noted scientists who are engaged for this purpose are Dr. A. F. Zahm, Secretary of the Advisory Committee of the Langley Aerodynamical Laboratory, whose lectures embrace aero-mechanics and aeroplane design; Doctor W. J. Humphreys, Professor of Meteorology, of the Weather Bureau, on the mechanics and laws of the atmosphere; Professor W. F. Durand, of Leland Stanford Junior University, on the theory of propellers, and Mr. R. M. Strong, and Dr. F. R. Hutton, professor emeritus of mechanical engineering at Columbia University, on internal combustion motors.

The entire curriculum at this time (April, 1914) is in an experimental stage but the plans of the Signal Corps contemplate the crys-

tallizing of the entire theoretical course into a much more definite program.

The Signal Corps authorities have had in view the employment of the best men obtainable for inaugurating of the courses. As this class of work is new to the Army it can readily be understood that there are few officers in the service who have had sufficient experience to lecture on the subjects named or to outline a suitable course of instruction. A number of officers have become competent practical operators of heavier-than-air machines, but few, if any, of them have had the time or opportunity to give the subject of aeronautics the deep, scientific investigation necessary to place behind a school of this character upon initiating its courses. As far as practical instruction in flying is concerned, the instructors are experienced Army aviators, at the present time assisted by Mr. Oscar A. Brindley, a civilian of wide experience. The authorities of the School have arranged for a course of lectures by Mr. Orville Wright, who will also give a series of practical demonstrations in the art of flying.

The Chief Signal Officer of the Army, in a letter to the Chief of Staff, dated Washington, May 7, 1913, in part says:

"It is a practice to begin the training of officers in aviation at civilian schools, most of which are conducted in connection with the manufacture of aeroplanes at various points. At these schools experienced civilian aviators take pupils, both military and civilian, and carry them through the elementary training to a point where they can make flights alone. When this training has been completed the military pupils are assigned to aeronautical stations where they can work up to qualification as military aviators. This has been largely the practice in our own Army and Navy. The civilian schools utilized are those conducted by the Wright Co., at Dayton, Ohio; the Curtis Co., at San Diego, Cal., and Hammondsport, N. Y., and the Burgess Co., at Marblehead, Mass. Young officers detailed recently have been sent direct to the Signal Corps aeronautical stations at San Diego, Cal., and Texas City, Tex., but this procedure was adopted on account of the shortage of mileage funds and not on account of desirability of a change in the method.

"Due to exigencies of the service and the lack of a permanent location, the instruction of our aeronautical stations has not been as effective as it is desired to make it. In the letter of April 11, the necessity of establishing a central flying school at some suitable station for our aeronautical service was urged. The establishment of such a school will unify and coordinate the instruction heretofore conducted at different parts of the country under various instructors, and make possible a consistent course, where the best instructors can be concentrated, and where a definite policy may be maintained. The location for such a station should be selected with extreme care, with climatic conditions favorable to beginners, and where instruction will not be interrupted during winter months."

Officers of the Army qualifying as military aviators under the rules approved by the Secretary of War receive a military aviator's certificate, also a military aviator's badge. The badge becomes the property of the person to whom issued.

Whenever an officer qualifies as a military aviator, the fact of qualification is announced in general orders of the War Department.

In a letter to the author dated February 26, 1914, Lieutenant-Colonel Samuel Reber, Signal Corps, U. S. Army, Acting Chief Signal Officer, states:

" * * * * I feel that our little School at San Diego is as good an institution of its kind as any in the world."

This officer contributed a most interesting article to a recent number of *Popular Mechanics* in which he states:

"The result of the last contest for the Gordon-Bennett aviation trophy, at Clearing, Ill., September 9, was undoubtedly a great surprise to all Americans who have not followed closely the development of aviation in this country. Up to the close of the starting time on that day the public at large had somehow a confident feeling that the American sporting spirit had provided the means and that American engineering skill had produced a defender with which an American pilot could keep the cup safely anchored in our country. France, the only challenging nation that sent her machines and pilots to wrest from us the world's most coveted trophy, won so easily and proved her supremacy in the air in such a decided manner as to incline one to take liberties with Bret Hart's well-known lines and ask, with some reason, Is American aviation a failure, And has the airman's race played out?

"The results of this race mark the advance in aviation from year to year; and the machine and motor winning the trophy are universally accepted as representing the highest development in the art from a mechanical and engineering point of view, and the successful pilot is hailed as king of the air for the year. When the winning machine, motor, and pilot are all of the same nationality the supremacy of the air is yielded without hesitation or dissent to the country producing the winning trinity. In this yearly blue-ribbon event in aviation, which since its initiation in 1909 has been over a closed circuit, the distance has increased from 12.4 to 124.2 miles and the average speed of the winning machine from 46.9 to 105.1 miles per hour. An American pilot, Glenn H. Curtiss, with a biplane and engine of his own design, won the first race at Rheims, in France. The second race was won by an English pilot, Claude Grahame White, with a Bleriot monoplane and Gnome engine, at Belmont Park, in this country. America is credited with the third victory at Eastchurch because the parents of the winning pilot, Weymann, who drove a Nieuport monoplane equipped with a Gnome engine, were American citizens—a rather barren victory for America from an aviation standpoint. The last race was won by a French pilot, Vedrines, in a Deperdussin monoplane equipped with a Gnome engine. France, who for the two preceding years had supplied the winning machine and motor, finally succeeded in completing the winning trinity at Clearing, Ill., where the best that America could do was, within the last three minutes before the close of the starting time, to send up an old-type Wright machine with an old-type Wright engine, which flew for less than 15 minutes and seemed like an old mother bird hovering over her progeny glorying in their achievement. The performance of the French trinity, the pilot, the plane, and the engine, was truly remarkable, as may be seen from the diagram showing the time of each lap, 4.14 miles in length, Vedrines average speed being 105.1 miles per hour. The speed at which he made his fastest lap was 106.3 miles per hour and that at which he made his slowest was 103.2 miles per hour. The wonderful skill of the pilot as evidenced by the fact that the maximum percentage variation in speed made in any lap from his average speed was 1.8 per cent, or, in other words, a speed regulation obtained only in the highest types of automatic machinery, truly remarkable indeed, when one considers the physical strain of driving for over 70 minutes a machine traveling at an average rate of 105 miles per hour.

"America, which gave birth to the art of aviation and which led the world during the period of its early development, has been distanced by the great nations of Europe, and, with the exception of the hydroaeroplane, has contributed practically nothing to the advancement of the science of the art in the past three years. When our aeroplanes are compared with those of the French, for example, the advantage is immeasurably on their side so far as the correct applications of engineering principles, design, ruggedness, and strength of landing gear, control, exquisite perfection of details and finish are concerned. Their motors have a much better performance record than any made in America.

"At the close of the year 1908 Wilbur Wright held all the important world's records in aviation, none of which has been subsequently held by an American pilot or machine at the close of any succeeding year. Through the genius of the Wrights, America led the world at the beginning of 1909, but has retrograded since that time until it is now far behind France, Germany, England, and Italy, not only in the number of pilots, types of aeroplanes and engines, but also in engineering skill and construction. The year 1909 was memorable for the great improvement in the skill of their flights; the beginning of cross-country flying and the first crossing of the English Channel, a feat that today attracts no particular attention; 1910 is notable for the exploitation of aviation from a promoting and sporting point of view as evidenced by the large number of aviation meets held throughout the world. The year 1911 saw the appearance of a practical hydroaeroplane; the development of cross-country flying in the long-distance circuits of Europe, and the addition of the aeroplane to the war material and the military airmen to the personnel of the armies of the great military powers. This year has been marked by the great advances made abroad in engineering and construction and by the successful employment of the aeroplane in actual war.

"A wave of enthusiasm, caused by the reports of the performances of the pioneer pilots, spread over the country in 1910 and led our people to throng to the meets and exhibitions in various parts of the land. The first meet, held at Los Angeles, in January, was a success, both from a sporting and financial point of view, and it seemed after this meet that the new art would find its principal support as a sport. Subsequent meets, while highly satisfactory from the point of view of the performance of the machines and pilots, were not successful financially. The most important meets held in this country, one at Belmont Park in 1910 and two in Chicago, one in 1911 and the other last September, were organized for the purpose of advancing public interest in aviation in this country. The support that the organizers received from the public at large will not, I am afraid, induce public-spirited citizens to venture again in this field. The exhibition field has likewise proved as barren. Most of the exhibition companies that have toured the country have been forced out of existence from want of financial success; those in existence have difficulty in making their expenses, while the competitions of individual airmen for contracts for appearance at country fairs has rendered the making of a mere living extremely difficult for the fraternity. The public is no longer satisfied with safe and sane flying, but demands spiral glides, dips of death, etc., which have in the past, and will in the future, greatly increase the number of unnecessary fatalities. A serious effort was made this spring to organize an 1,800-mile circuit in the middle west for the purpose of developing cross-country flying, a most important branch of aviation of which nearly all our pilots have no knowledge and in only one of the ten large cities, Chicago, was the necessary support secured. In fact, it seems that the American public is not sufficiently interested in aviation to give it the financial support necessary to establish it as a recognized sport.

"In 1907, the Signal Corps of the Army, realizing the value of aviation as an adjunct to the military art issued specifications covering the construction of aeroplanes for military purposes and received over 20 tenders for machines. But one firm of constructors, the Wrights, delivered a machine in 1908, which during the acceptance trials fell, killing Lieut. Selfridge and badly injuring Orville Wright. As a result of this accident, the trials were postponed until the following summer when the machine, having successfully passed the required test, was accepted and two pilots were trained by the Wrights. Since that time progress in military aviation could not be made as Congress did not appropriate funds

for this purpose until 1911, when the sum of $125,000 was made available. This year Congress has authorized an expenditure of $100,000. In 1911, a school for the training of military airmen was established at College Park, Md., where there are at present nine officers on duty and four machines available. Before an officer is rated as a military airman he is required to pass certain tests to demonstrate his skill. Five officers only have passed the required test and two of these are no longer on aviation duty. During the August maneuvers in Connecticut, there were but three aeroplanes available for reconnaissance work, none of which could carry an observer in addition to the pilot (an essential requisite for efficient results), and two of them could not be used when most needed on account of engine trouble due to defective design. Fortunately, the skill of the pilots offset the defects of the machines and their reconnaissance work proved the great value of the aeroplanes as an essential part of the equipment of an army. Congress has not appreciated the importance of or given adequate support to military aviation. On the other hand, the great nations of Europe have realized its importance, and France has led the world in its utilization. Aviation has appealed more strongly to the imagination and esprit of the French people than to the rest of the world. This nation, seeing an opportunity of increasing its military strength over that of its neighbors, who have not been so prompt to appreciate the utility of aviation, raised large sums of money by popular subscription for the purchase of aviation material for the army, and public opinion has forced the Government to support and develop the fourth arm of the French Army. The French and English Governments have for the past two years given direct support and encouragement to manufacturers by money awards at military trials, and subsequent orders for the machines winning in the trials. The importance that the nations of Europe have attached to military aviation may be judged from the following table:

Country.	Aeroplanes.			Pilots.			
	Army	Navy	Total	Army	Navy	Total	Appropriations.
France	259	1	260	161	10	171	$7,492,000
Russia	99	1	100	23	5	28	Not specified
Germany	46	2	48	50	2	52	$1,000,000
England	23	6	29	57	31	88	$1,540,000
Italy	22	4	26	31	4	35	$2,000,000
Japan	10	4	14	4	4	8	Not specified
United States...	4	2	6	10	4	14	$100,000
China	1	..	1	1	..	1	Not specified

"Experience, experiment, and application of engineering principles have advanced the construction of the aeroplane far beyond the pioneer machines of our chief inventors. Judging, however, from the large number of freak machines that are to be seen in the hangars around our aerodomes, there is no general realization that the correct design of an aeroplane calls for a new branch of engineering—aeronautical engineering—which embraces physics, mechanical engineering, meteorology, and even marine engineering and naval architecture. It is to be hoped that the day will soon come when the carpenter shop or the back yard will no longer serve as a factory nor the would-be constructor obtain his plans from an octavo volume on 'How to Build an Aeroplane,' or from the pages of an aeronautical journal. The number of imitators of successful designs is great, but the really competent designer is a 'rara avis' in this country.

"Whatever may be the cause, no motor of American make has remained in the air half as long as the best foreign production. To place the development of mechanical flight on a correct engineering basis, the cut-and-try methods of the pioneers must give way to both theoretical and practical investigations of the laws of aerodynamics, and the cor-

rect principles of design, and to careful tests of machines and the materials entering into their construction. This can be done only in suitably equipped aeronautical laboratories by a trained staff. Unfortunately, there is no such laboratory in this country, and America is compelled to await the results obtained in the foreign privately established and endowed laboratories, as the foreign governmental institutions do not, as a matter of military policy, make public any results.

"Outside of the nominal control of licensed pilots in sporting events by the Aero Club of America, as the representative of the international Aeronautical Federation, and the restrictions contained in the laws of Connecticut, there are no prescribed governmental tests to ascertain the skill of airmen, no inspection of machines to develop their defects; no inhibition against carrying passengers or flying over cities; no rules of the road in the air. Under the present conditions in this country, any person, no matter how inexperienced, may fly any machine, no matter how unsafe, without incurring any legal penalty and, moreover, can carry as a passenger any person rash enough to accompany him. On the other hand, in a number of States an attempt at suicide is a crime.

"The Federal Government has prescribed regulations looking to safe transit on land and over water, but has neglected transit in the air. The press at large has not given aviation any real support. With the exception of a few broad-minded and progressive journals, it has devoted its columns to the exploitation of its spectacular side and to descriptions, with grewsome details, of the unfortunately frequent casualties, creating the impression that aviation is unsafe, unnecessary, and of no practical utility. The public has lost interest and does not support aviation as a sport; the Government has given but little aid in developing it as an adjunct to the national defense, and has imposed no regulation or restriction on its private use; the output of aeroplanes and motors in this country is inferior both in number and in quality to that of the foreigners; our airmen are fewer in number and of less experience; no public-spirited citizen has endowed an aeronautical laboratory as has been done in many instances abroad; our technical colleges have not afforded opportunities for the scientific training of aeronautical engineers.

"Such is the present status of American aviation.

"Its needs are evident and will be satisfied when the public at large and the Government give the same measure of support to it as is given abroad when the qualifications of airmen and machines, and their circulation in the air, are controlled by Federal regulations; when aeronautical laboratories are established and technical colleges turn out men as accomplished in aeronautical as in other branches of engineering; when our constructors improve their methods, and our mechanical engineers their motors. The successful solution of the problem of dynamic flight was due to America. In view of what she has done in other lines of endeavor, America, having once led the world in this new art whose possibilities and potentialities the future alone can portray, can confidently be expected to regain her lost supremacy of the air, but cannot accomplish this without the earnest cooperation of all, in official and private life, who are interested in the welfare of the newly born handmaiden of civilization—Aviation.

"What American aviation needs:

"Support by the public.

"Support by the Government.

"Federal control of flying.

"Endowed aeronautical laboratories.

"Aeronautical engineering courses in technical colleges.

"Scientific construction methods.

"Improved motors."

CHAPTER XIX.

MILITARY EDUCATION OF THE ORGANIZED MILITIA.

"Not stones nor wood nor the art of artisans make a state; but where men are who know how to take care of themselves, these are cities and walls."

The relations of the War Department to the Organized Militia of the several States, Territories, and District of Columbia are governed by the provisions of the Constitution of the United States which pertain to the militia and by the federal laws which have been enacted by Congress pursuant to the authority conferred by the constitutional provisions. The constitutional provisions and many of the most important of the federal laws follow:

CONSTITUTIONAL PROVISIONS.

A well-regulated militia being necessary to the security of a free state, the right of the people to keep and bear arms shall not be infringed. (Art. II, amendments.)

The Congress shall have power:

* * * *

(a) To provide for calling forth the militia to execute the laws of the Union, suppress insurrections, and repel invasions.

(b) To provide for organizing, arming, and disciplining the militia and for governing such part of them as may be employed in the service of the United States, reserving to the States, respectively, the appointment of the officers and the authority of training the militia according to the discipline prescribed by Congress. (Art. I, sec. 8.)

(c) To make all laws which shall be necessary and proper for carrying into execution the foregoing powers and all other powers vested by this Constitution in the Government of the United States, or in any department or officer thereof. (Art. I, sec. 8.)

The executive power shall be vested in a President of the United States of America. (Art. II, sec. 1.)

The President shall be Commander in Chief of the Army and Navy of the United States and of the militia of the several States when called into the actual service of the United States. (Art. II, sec. 2.)

The United States shall guarantee to every State in this Union a republican form of government, and shall protect each of them against invasion; and on application of the legislature or of the executive (when the legislature cannot be convened) against domestic violence. (Art. IV, sec. 4.)

FEDERAL LAWS.

The organized and active land forces of the United States shall consist of the Army of the United States and of the militia of the several States when called into service of the United States. (Act of Apr. 22, 1898.)

* * * *

The act of Congress approved January twenty-first, nineteen hundred and three, entitled "An act to promote the efficiency of the militia, and for other purposes," (32 Stats., 775), as amended by the act of May twenty-seventh, nineteen hundred and eight (35 Stats., 339), and the act of April 21, 1910, (36 Stats., 329), is as follows:

Section 1. That the militia shall consist of every able-bodied male citizen of the respective States and Territories and the District of Columbia, and every able-bodied male of foreign birth who has declared his intention to become a citizen, who is more then eighteen and less than forty-five years of age, and shall be divided into two classes: The Organized Militia, to be known as the National Guard of the State, Territory, or District of Columbia, or by such other designations as may be given them by the laws of the respective States or Territories; the remainder to be known as the reserve militia: Provided, That the provisions of this act and of section sixteen hundred and sixty-one, Revised Statutes, as amended, shall apply only to the militia organized as a land force.

* * * *

Sec. 12. There shall be appointed in each State, Territory, and District of Columbia an adjutant-general, who shall perform such duties as may be prescribed by the laws of such State, Territory, and District, respectively, and make returns to the Secretary of War, at such times and in such form as he shall from time to time prescribe, of the strength of the Organized Militia, and also make such reports as may from time to time be required by the Secretary of War. That the Secretary of War shall, with his annual report of each year, transmit to Congress an abstract of the returns and reports of the adjutants-general of the States, Territories, and the District of Columbia, with such observations thereon as he may deem necessary for the information of Congress.

* * * *

Sec. 15. That the Secretary of War is authorized to provide for participation by any part of the Organized Militia of any State, Territory, or the District of Columbia, on the request of the governor of a State or Territory, or the commanding general of the militia of the District of Columbia, in the encampments, maneuvers, and the field instruction of any part of the Regular Army, at or near any military post or camp or lake or sea-coast defenses of the United States. In such case the Organized Militia so participating shall receive the same pay, subsistence, and transportation as is provided by law for the officers and men of the Regular Army, and no part of the sums appropriated for the support of the Regular Army shall be used to pay any part of the expenses of the Organized Militia of any State or Territory or the District of Columbia, while engaged in joint encampments, maneuvers, and field instruction of the Regular Army and Militia: Provided, That the Secretary of War is authorized, under requisition of the governor of a State or Territory or the commanding general of the militia of the District of Columbia, to pay to the quartermaster-general, or such other officer of the militia as may be duly designated and appointed for the purpose, so much of its allotment, under the annual appropriation authorized by section sixteen hundred and sixty-one, Revised Statutes, as amended, as shall be necessary for the payment, subsistence, transportation, and other expenses of such portion of the Organized Militia as may engage in encampments, maneuvers, and field instruction with any part of the Regular Army at or near any military post or camp or lake or sea-coast defenses of the United States, and the Secretary of War shall forward to Congress, at each session next after said encampments, a detailed statement of the expense of such encampments and maneuvers: Provided, That the command of such military post or camp and the officers and troops of the United States there stationed shall remain with the regular commander of the post without regard to the rank of the commanding or other officers of the militia temporarily so encamped within its limits or in its vicinity: Provided further, That except as herein specified the right to command during such joint encampments, maneuvers, and field instruction shall be governed by the rules set out in Articles One hundred and twenty-two and One hundred and twenty-four of the rules and articles for the government of the armies of the United States. (36 Stat. L, 329.)

Sec. 16. That whenever any officer or enlisted man of the Organized Militia shall upon recommendation of the governor of any State, Territory or the commanding general of the District of Columbia Militia, and when authorized by the President, attend and pursue a regular course of study at any military school or college of the United States, such officer or enlisted man shall receive from the annual appropriation for the support of the army, the same travel allowances and quarters or commutation of quarters to which an officer or enlisted man of the Regular Army would be en-

titled for attending such school or college under orders from proper military authority; such officer shall also receive commutation of subsistence at the rate of one dollar per day and each enlisted man such subsistence as is furnished to an enlisted man of the Regular Army while in actual attendance upon a course of instruction.

Sec. 17. That the annual appropriation made by section sixteen hundred and sixty-one, Revised Statutes, as amended, shall be available for the purpose of providing for issue to the Organized Militia any stores and supplies or publications which are supplied to the army by any department. Any State, Territory, or the District of Columbia may, with the approval of the Secretary of War, purchase for cash from the War Department, for the use of its militia, stores, supplies, material of war, or military publications, such as are furnished to the army, in addition to those issued under the provisions of this act, at the price at which they are listed for issue to the army, with the cost of transportation added, and funds received from such sales shall not be covered into the Treasury, but shall be available until expended to replace therewith the supplies sold to the States and Territories and to the District of Columbia in the manner herein provided.

* * * *

Sec. 19. That upon the application of the governor of any State or Territory furnished with material of war under the provisions of this act or former laws of Congress, the Secretary of War may detail one or more officers of the army to attend any encampment of the Organized Militia, and to give such instruction and information to the officers and men assembled in such camp as may be requested by the governor. Such officer or officers shall immediately make a report of such encampment to the Secretary of War, who shall furnish a copy thereof to the governor of the State or Territory.

Sec. 20. That upon the application of the governor of any State or Territory furnished with material of war under the provisions of this act, or former laws of Congress, the Secretary of War may, in his discretion, detail one or more officers or enlisted men of the army to report to the governor of such State or Territory for duty in connection with the Organized Militia. All such assignments may be revoked at the request of the governor of such State or Territory or at the pleasure of the Secretary of War. The Secretary of War is hereby authorized to appoint a board of five officers on the active list of the Organized Militia, so selected as to secure, as far as practicable, equitable representation to all sections of the United States, and which shall, from time to time, as the Secretary of War may direct, proceed to Washington, District of Columbia, for consultation with the Secretary of War respecting the condition, status, and needs of the whole body of the Organized Militia. Such officers shall be appointed for the term of four years unless sooner relieved by the Secretary of War.

Sec. 21. That the troops of the militia encamped at any military post or camp of the United States may be furnished such amounts of ammunition for instruction in firing and target practice as may be prescribed by the Secretary of War, and such instruction in firing shall be carried on under the direction of an officer selected for that purpose by the proper military commander.

* * * *

Sec. 23. That for the purpose of securing a list of persons specially qualified to hold commissions in any volunteer force which may hereafter be called for and organized under the authority of Congress, other than a force composed of Organized Militia, the Secretary of War is authorized from time to time to convene boards of officers at suitable and convenient army posts in different parts of the United States, who shall examine as to their qualifications for the command of troops or for the performance of staff duties all applicants who shall have served in the Regular Army of the United States, in any of the volunteer forces of the United States, or in the Organized Militia of any State or Territory or District of Columbia, or who, being a citizen of the United States, shall have attended or pursued a regular course of instruction in any military school or college of the United States Army, or shall have graduated from any educational institution to which an officer of the army or navy has been detailed as superintendent or professor pursuant to law after having creditably pursued the course of military instruction therein provided. Such examinations shall be under rules and regulations prescribed by the Secretary of War, and

shall be especially directed to ascertain the practical capacity of the applicant. The record of previous service of the applicant shall be considered as a part of the examination. Upon the conclusion of each examination the board shall certify to the War Department its judgment as to the fitness of the applicant, stating the office, if any, which it deems him qualified to fill, and, upon approval by the President, the names of the persons certified to be qualified shall be inscribed in a register to be kept in the War Department for that purpose. The persons so certified and registered shall, subject to a physical examination at the time, constitute an eligible class for commissions pursuant to such certificates in any volunteer force hereafter called for and organized under the authority of Congress, other than a force composed of Organized Militia, and the President may authorize persons from this class to attend and pursue a regular course of study at any military school or college of the United States other than the Military Academy at West Point and to receive from the annual appropriation for the support of the army the same allowances and commutations as provided in this act for officers of the Organized Militia: Provided, That no person shall be entitled to receive a commission as a second lieutenant after he shall have passed the age of thirty; as first lieutenant after he shall have passed the age of thirty-five; as captain after he shall have passed the age of forty; as major after he shall have passed the age of forty-five; as lieutenant-colonel after he shall have passed the age of fifty, or a colonel after he shall have passed the age of fifty-five: And, provided further, That such appointments shall be distributed proportionately, as near as may be, among the various States contributing such volunteer force: And provided, That the appointments in this section provided for shall not be deemed to include appointments to any office in any company, troop, battery, battalion, or regiment of the Organized Militia which volunteers as a body or the officers of which are appointed by the governor of a State or Territory.

* * * *

Publications issued by the Division of Militia Affairs for use of members of the Organized Militia include a series of circulars, in which are published matters of general interest to the militia, and manuals of instruction for the members of the militia. These circulars are furnished to the several adjutants-general for distribution. Distribution to individual members of the Organized Militia, either commissioned or enlisted, is not made by the Division of Militia Affairs.

The importance to the country of the instruction, both theoretical and practical, of the National Guard cannot be overestimated. The Regular Army and the Organized Militia are the only organized defenses of the country. The paper strength of the National Guard varies between one hundred and ten thousand to one hundred and twenty thousand. In the event of war possibly not to exceed sixty to seventy per cent. of this number would be available for immediate service. It is true, however, that the organizations could be immediately filled up to war strength by enlistment of raw recruits, but these would not be trained men. The Regular Army and Militia combined, if called upon for immediate service could not place in the field to exceed one hundred and fifty thousand men. To exceed this would necessitate the withdrawal of troops in charge of permanent coast defenses—a rather dangerous expedient.

The system of service schools for the instruction of officers and noncommissioned officers of the Organized Militia is second in importance only to that in vogue in the Regular Army. It has not been

the intention to convey the impression that the importance of the instruction of the National Guard is least because it occupies the last chapter in this volume, but rather that it is a most fitting conclusion of a work devoted to a system of education which has alone the single view of preparing for the defense of the nation in the event of war, and which has as one of its by-products the making of better citizens in every sense of the word.

A great deal has been said and is being said about patriotism, but if this quality in our citizens is at all outwardly manifest it is certainly that which is evidenced by so many busy men of the country who volunteer their services to serve in the National Guard where their services are but little appreciated by the public at large, and receive but scant support by the Government.

It must be borne in mind that the national guardsman has first his living to earn. What time he can spare from the vocation he pursues in doing this he gladly gives up to the service of his country with practically no remuneration whatever; at best the remuneration he receives seldom covers the cost of actual expense he incurs in connection with his duty with the State troops. It is hoped that this great, rich country of ours will recognize the great handicap and burden under which the national guardsmen, the citizen soldiers, are serving, or attempting to serve, and will offer them a remuneration out of our beneficent treasury as a recognition for the sacrifice of their own interests. In no other institution in which the Government has an interest does it expect service without some measure of compensation. The answer to the question of an efficient National Guard is to provide remuneration for those who serve as officers and in the ranks.

The national guardsmen have in many instances been severely criticized by Army inspectors for neglect of proper attention to their military duties. There are, no doubt, numbers of National Guard officers who could be justly accused of this offense, but it is equally probable that the officer of the Army whose sole time is given to the service of the Government, for which he is paid, looks at the national guardsman more through the eyes of a professional soldier than from the national guardsman point of view. It is an easy matter to prescribe courses of instruction and other duties of various kinds which if continuously pursued would occupy a large share of a man's time, but it is not so easy to prepare a curriculum made up entirely of the gist of things which a National Guard officer should know and con-

dense in such shape that he may pursue this course without undue sacrifice of his own private affairs.

Military education in the Organized Militia of the United States is in many ways closely associated with the War Department. Congress makes appropriations annually for the partial maintenance of Militia organizations in the several States and the Secretary of War is authorized to designate officers of the Regular Army as inspectors and instructors of State troops. These officers are in many instances in charge of the theoretical as well as the practical instruction of the troops of the States to which they are assigned. They are not, excepting in rare instances, members of these organizations in any sense whatever. In some States, however, the Army inspector-instructors have but little supervision over the militia service schools.

The inspector-instructors of engineers, cavalry, field artillery and coast artillery are apportioned by the War Department to districts composed of one or more States rather than to individual States. In some instances the inspector-instructor performs duty in as many as four States in connection with these arms of the service. This apportionment is shown in Appendix VI, where is given in alphabetical order the several States with the officers of the Army on duty with the Organized Militia of each of them.

The governors are primarily responsible for the theoretical and practical instruction of the National Guard, or Organized Militia, of their respective States, and see that their organizations are kept up to the degree of efficiency required by the War Department, in so far as it has authority to exercise any supervision. It is well to state that the relations between the War Department and the Organized Militia of the several States are none to clearly defined.

Every State in the Union has some Organized Militia. These troops are State troops first. They are, however, subject to the call of the President of the United States "to execute the laws of the Union, suppress insurrections and repel invasions." The Attorney General of the United States has held that these State troops may not be ordered beyond the limits of the United States.

The authorities of each State, to a large extent, exercise their own judgment in determining the degree of efficiency required for their troops. The natural result is that there is very little coordination between the Organized Militia of the several States. There is really no standard of efficiency to which all States conform. Whenever the Militia of any State fails to come up to the minimum degree of training which the War Department considers requisite, federal support is

withdrawn from that State. The State, may, however, continue its Militia organization as State troops, but receiving no Federal support.

The National Guard of a number of States has reached a very satisfactory degree of field efficiency; for instance, the State of New York has its troops thoroughly organized, a very effective system of service schools is in force, the course of instruction in which is progressive, and rigid examinations for appointments and promotions are held. Taken as a whole the troops of this State would be able to take the field in event of war as an effective fighting force. There are other states equally well organized whose National Guard has reached a very satisfactory state of training; among them might be mentioned Pennsylvania, Ohio, Massachusetts, Oregon and of the smaller states, Vermont.

It would be impracticable to give anything like a detailed description of the Militia educational systems in force for the theoretical instruction of the officers and noncommissioned officers of the military forces of the several States of the Union. With a few exceptions every one of the forty-eight states has service schools. A number of them have in addition camps for theoretical instruction under officers of the Army. The plan of many State service schools is patterned somewhat after the Army Service Schools, particularly after those at Fort Leavenworth, Kansas.

The War Department is making a great effort to systematize and coordinate the practical and theoretical instruction of the various State troops. Everything has been working towards this end for a number of years. There is a marked tendency on the part of the War Department authorities to give the Militia whatever support it may need to make of it an effective fighting force. With frequent maneuvers on a large scale, participated in by both Regulars and national guardsmen, with its many opportunities for freely mingling of these two classes of troops, the natural consequence has been a more fraternal feeling and a better understanding.

Most of the States have in connection with their service schools some form of correspondence school. In many of them the correspondence method is the only theoretical course attempted. A few States have no schools of any kind, with exception of officers' and noncommissioned officers' schools within the regimental organizations, which make them local in character, rather than under the supervision of the highest military authority of the State.

As space forbids giving in detail the systems of education in use in each of the States, recourse is had to the selection of a few which are more or less representative of those in general practice:

MASSACHUSETTS.

The school system for Massachusetts is fully set forth in an order issued by authority of the Governor, from the Adjutant General's office, September, 1913. The entire order is embodied here:

THE COMMONWEALTH OF MASSACHUSETTS,
THE ADJUTANT GENERAL'S OFFICE,
Boston, September, 1913.

GENERAL ORDERS:
No.

I. SERVICE SCHOOLS.

1. INSTRUCTION FOR 1913-14.

The Schools and Conferences herein mentioned will constitute the work of The Service Schools for the year 1913-14. All other courses created by previous orders are hereby suspended.

The Training School.

A two year course for enlisted men authorized by General Orders 21, Adjutant General's Office, c. s.

The Line Officers' School.

A two year course for all new officers of infantry, cavalry, field artillery, coast artillery, Marine Guard and the Signal Corps who have been commissioned since November 1, 1912, and all lieutenants who have not taken or who failed to pass the first year of Course B.

All aids and field officers of Staff Departments will be required to take the work of The Line Officers' School unless they hold certificates of graduation from The Service Schools or are enrolled in either Course B or Course C.

The Naval Brigade School.

A two year course for all new officers of the Naval Militia who have been commissioned since 1 November, 1912, and all junior officers who have not taken or who have failed to pass the first year of the Naval Brigade School for 1912-13.

The Medical Officers' School.

A three year course for all new officers of the Medical Department who have been commissioned since 1 November, 1912, and all lieutenants who have not taken or who have failed to pass the first year of the Medical Officers' School for 1912-13.

The Staff Officers' School.

A one year course for all adjutants who have been appointed since 1 November, 1912, and all adjutants who have not taken or who have failed to pass the first year of section 1, Course F, in 1912-13.

A two year course for all Supply officers who have been appointed since 1 November, 1912, and all supply officers who have not taken or who have failed to pass the first year of section 2, Course F, in 1912-13.

A one year course for all Inspectors of Small Arms Practice.

Post Graduate School.

Yearly courses for officers who wish to qualify for higher grades.

Conferences.

For all colonels, lieutenant colonels, majors and aids except heads of departments who have certificates from Brigade Commanders or heads of departments that they are competent to carry on the work of the conferences.

Special Schools.

Special schools for musicians, cooks, quartermaster sergeants and clerks will be conducted by districts. Other special schools which may be deemed necessary will be authorized by later orders.

Captains in command of companies are not required to attend the Line Officers' School.

Enlisted men are not eligible for admission to any school or conference except The Training School.

2. CERTIFICATES.

Those who complete the work in any of the above courses will be given certificates of qualification in theoretical work as follows:

The Training School.—Second Lieutenant.

The Line Officers' School.—First Lieutenant, except in the case of staff officers on whose certificates a notation will be made that shall state that the certificate need not be accepted by the Board of Military Examiners in lieu of an examination if subsequently the holders are elected or commissioned in the line.

The Naval Militia School.—Ensign.

The Medical Officers' School.—A certificate of proficiency in the subjects taken.

The Staff Officers' School.—A certificate of proficiency in the subjects taken.

3. PENALTIES.

Any student who has failed or who hereafter fails to pass for two consecutive years in a course which he is required to take will be requested to tender his resignation and if he fails so to do, will be ordered to appear before a special board of examiners.

4. TERMINATION OF SERVICE SCHOOL WORK.

On account of the rapidly changing military and naval methods, it is believed that every officer, in order to retain his efficiency should keep abreast of The Service School work which is not, however, compulsory, except as specified herein and in previous orders.

The Line Officers' School is required and covers substantially a two year course for lieutenants, unless promoted to be captains during that time. The Field Officers' Conferences are required of field officers who naturally should be informed of the latest developments in military and naval science. The Staff School is required of staff officers who should be better qualified than line officers, as they are expected to act for their chiefs.

5. RATINGS.

A system of rating will be a part of each school and conference and each officer's standing will become a part of his record in the office of The Adjutant General.

6. SCHEDULES OF INSTRUCTION.

The Training School.—The schedule for the first year will be published in subsequent orders.

The Line Officers' School.—1st year.—Company Administration, Map Reading, Aid to Civil Power.

Naval Brigade School.—1st year.—Seamanship, Navigation.

Medical Officers' School.—1st year.—Preliminary Class: Manual for the Medical Department; Military Hygiene—Ashburn; Drill Regulations; Army Regulations; Map Reading; Articles of War. Intermediate Class: Sanitary Tactics—Munson; Military Hygiene—Havard; Medical Service in Campaign—Straub; Map Reading; Mason's Handbook; Organized Militia, Regulations of the War Department, 1910; Laws and Regulations, M. V. M. Advanced Class: Sanitary Tactics—Munson; A Study in Troop Leading—Morrison and Munson; Field Service Regulations; War Game each month during year; Correspondence, work in problems; Manual for the Medical Department.

The Staff School.—1st Section.—1 year for adjutants. Subjects.—Drill Regulations, Duties and Papers of Adjutants. 2nd section.—2 years for supply officers. 1st year.—Drill Regulations, Departmental Subjects. 2nd year.—The remaining subjects. Subjects.—Drill Regulations; Issue, Care and Transportation of Commissary Supplies; Wagon and Auto Transportation; Rail Transportation; Payment of Troops. 3rd Section.—1 year for Inspectors of Small Arms Practice. Subjects.—Small Arms Firing Regulations; Battle Fire.

Conferences.—Four war games and such other work as may hereafter be prescribed.

Special School.—The work in these schools will be detailed in later orders.

Post Graduate School.—Special courses for officers who wish to improve themselves in their profession and who have completed the work of The Service Schools with a standing of *good* or higher. Work in this school is voluntary. Officers who have not attained the grade of *good* in required Service School work may on application repeat the work. Captains of the line are eligible to membership in this school without previous Service School work.

7. Schedule of Instruction in Courses Begun in 1912-13.

Course A, 2d year.	Course B, 2nd year.	Courses C and D, 2nd year combined.
Drill Regulations.	Drill Regulations.	Drill Regulations.
	Military Cooking.	
Courtesy and Discipline.	Military Correspondence.	
		Field Service Regulations.
Individual Small Arms Fire.		Battle Fire.
		Aid to Civil Power.

8. Courses Which Are Discontinued.

Course A, 1st year, becomes The Training School.
Course B, 1st year, becomes Line Officers' School.
Course C, 1st year, becomes Line Officers' School.
Course D, 1st year—
Course E becomes Field Officers' Conferences.
Course F becomes Staff School.

By order of the Commander-in-Chief,

Gardner W. Pearson,
The Adjutant General, Chief of Staff.

Official:
William S. Simmons,
Lieutenant Colonel, Adjutant General.

CALIFORNIA.

INFANTRY.

The theoretical instruction of the infantry of the National Guard of California, as planned by Captain Frank S. Bowen, the inspector-instructor of the State for this arm of the service, embraces the solution of map problems and work of a similar nature. The scheme for the school may be best outlined by embodying extracts from General Orders No. 23, State of California, The Adjutant General's Office, Nov. 13, 1913:

Scheme for conducting the School:

* * * * *

(a) The School will consist of a general course for all officers below the grade of major, and of a special course for all officers above the grade of captain. The object of the general course will be primarily to get all officers acquainted with the military books issued to the organizations, and to encourage the habit of using them both for study and reference. The object of the special course will be to familiarize field officers with map problems involving military situations requiring estimates of the situation, and the issuing of orders.

(b) The work will be sent out by The Adjutant General on November 25, 1912; December 25, 1912; January 25, 1913, and February 25, 1913, direct to all infantry officers. Officers who do not receive a copy of the school work in seven days from the dates mentioned above will notify The Adjutant General of the fact.

(c) All officers will answer the questions and solve the problems pertaining to their course so as to be able to return their completed work, for each monthly period, to their regimental commanders before January 1, 1913; February 1, 1913; March 1, 1913, and April 1, 1913.

(d) While officers above the grade of captain are not required to take the general course it is expected that they familiarize themselves with the work and aid their junior officers in their studies.

(e) No infantry officer will be excused from taking the prescribed course unless he make application in writing, stating reasons, to his regimental commander and the same be approved by him. Regimental commanders who are unable to take the prescribed course will notify The Adjutant General.

(f) Regimental commanders will be held responsible that their officers comply with the spirit of this order, and to fulfill this duty they will, either directly, by conference with their lieutenant colonels when practicable, or by means of a board of officers review, in a general way, the complete school papers submitted by their officers.

(g) Regimental commanders will mail to The Adjutant General their solutions, and the completed work of the officers of their regiments, for each monthly period, on January 10, 1913; February 10, 1913; March 10, 1913, and April 10, 1913.

(h) On the fifteenth day of the months mentioned in the immediate preceding section (g) there will be mailed from The Adjutant General's Office, direct to all infantry officers, copies of an approved set of answers and solutions for the work of the preceding month.

4. In connection with the school work all infantry officers will pursue the following course of reading in the Infantry Drill Regulations as outlined:

December—Definitions (Pars. 1-100 and 782-791).
January—Paragraphs 101-158 and 350-488.
February—Paragraphs 159-198 and 489-622.
March—Paragraphs 199-257, 623-707, 745-748, 758-765, and 792-803.

5. The drill instruction of the infantry companies will conform to the monthly assignment of work for the officers, as laid down in section 4 above.

6. Officers who desire to obtain information on any military question are encouraged to communicate, at any time, with the Director of the Correspondence School. The answers to all questions asked will be prepared and published from time to time in a pamphlet designated "General Information."

* * * * *

ARTILLERY.

Artillery is comparatively new for California. Capt. Edgar H. Yule, U. S. Field Artillery, who is on duty with the artillery of the State is the first resident inspector-instructor who has worked with its batteries for any length of time. Under the direction of this officer bulletins and sets of questions are mailed out to the officers of the batteries. These bulletins are very comprehensive and serve as a text for study and solution of artillery problems.

CAVALRY.

A Correspondence School for Cavalry officers is conducted under the supervision of the inspector-instructor for that arm of the service detailed by the War Department. The course comprises the following scheme:

* * * * *

(a) Correspondence School Course for Officers.

1. Subjects:
   December: Military Topography. (Textbook, Military Topography, by Sherrill.)
   January: Field Service Regulations.
   February, March and April: Tactics. (Textbooks, Tactical Principles and Problems, by Hanna; Studies in Minor Tactics.)
2. Scheme for conducting the schools:

(a) The work will be sent out in time to reach the organizations before the first of each month, copies of which will be distributed by the squadron commander to his staff officers, and by troop commanders to their lieutenants.

(b) The squadron commander and the troop commanders will inclose their completed work with that of their lieutenants, and mail the same to the Director of the Schools before the last day of the month.

(c) All officers will answer the questions and solve the problems sent out. The squadron staff officers and the lieutenants in each troop will turn their completed work over to their respective squadron and troop commanders in time to enable them to comply with (b).

(d) In case any officer be unable to pursue the course he will make application in writing to his squadron commander to be excused, stating reasons.

(e) By the fifteenth of the succeeding month the corrected papers, or an approved set of answers and solutions will be mailed to the squadron commander for distribution to his staff and to the troop commanders for distribution to their lieutenants.

(f) Where explanations and remarks by the director appear advisable they will accompany the questions and problems in the form of a memorandum.

(g) A record will be kept by the director and at the end of the course a report made to The Adjutant General upon the progress made by each officer.

(h) When it appears more advantageous for the director to assign lessons for the month's work (as will frequently be the case in studying Tactics), and personally conduct an examination at the end of the month, this method will be followed instead of sending out questions and problems.

There is also a school for noncommissioned officers.

ARIZONA.

Arizona supplements the regular instruction received in the armories during drill periods by a correspondence school course. The plan of this school is set forth in the following order:

GENERAL ORDERS }
No. 18. }

STATE OF ARIZONA,
MILITARY DEPARTMENT,
Phoenix, Dec. 11, 1913.

1. All correspondence regarding school work will be forwarded direct to the Inspector-Instructor and not through this office.

2. The first papers of the correspondence school course, Session 1913-14, will be mailed from this office so as to reach all student officers by December 15th. The papers will be mailed bi-monthly thereafter. When an officer receives a certificate of proficiency in any subject signed by the Inspector-Instructor, he will be excused from further Correspondence School work on that subject, and may present the certificate to any examining board in lieu of taking an examination in that subject for a period of two years from its date, unless the textbook on that subject is changed.

3. All officers will take the full correspondence school course, unless holding certificates as noted above, or are specially excused from this office.

4. Student officers will carefully comply with the following:

(a) In answering questions use pen and ink (or typewriter) except when pencil is necessary for maps, etc.

(b) Follow the instructions in the Inspector-Instructor's Memoranda.

(c) Study the prescribed lessons and answer from memory when prescribed.

(d) Mail all sets of questions back to Inspector-Instructor within two weeks after receipt of same.

(e) Notify the Inspector-Instructor at once if you have not a copy of both Infantry Drill Regulation, 1911, and Field Service Regulations, 1913.

OFFICIAL:

By order of the Governor,
CHAS. W. HARRIS,
The Adjutant General.

Approved Dec. 11, 1913.
GEO. W. P. HUNT,
The Governor of Arizona.

ALABAMA.

Alabama conducts a correspondence school for its commissioned officers. Questions on Drill Regulations, Firing Regulations, etc., and tactical problems are published in general orders from the office of The Adjutant General of the State. Circular 3, calling attention to certain features of the school system, and two of the general orders named follow:

CIRCULAR No. 3.

STATE OF ALABAMA,
THE ADJUTANT GENERAL'S OFFICE,
Montgomery, Oct. 16, 1913.

The attention of Company Commanders is called to the "Chart" issued October 1st from Adjutant General's office.

It is absolutely necessary that every Company have a System of "Progressive Drills and Exercise" if they wish to attain a Standard of efficiency.

The Inspector at the Annual Inspection will lay stress on the Record of "Progressive Drills and Exercises" kept by each Company, and will be graded as follows: "Excellent—Good—Fair—Bad."

The attention of all Officers is called to the necessity of answering the communications sent out monthly in the "Correspondence School." A record will be kept of this School showing those who answer the Communications promptly, and are interested, and the degree of efficiency shown by their answers. Officers should not be timid in answering these communications, thinking they will make mistakes, as this is expected, and when their attention is called to same, *profit* by them.

The above will be strictly adhered to, so when the Inspector-Instructor is called upon by the War Department or Governor to report on the efficiency of an officer, the report will be based on his record.

JOSEPH B. SCULLY,
Brigadier General,
The Adjutant General.

GENERAL ORDERS No. 9.

STATE OF ALABAMA,
THE ADJUTANT GENERAL'S OFFICE,
Montgomery, March 1, 1914.

CORRESPONDENCE SCHOOL

INFANTRY OFFICERS

PROBLEM REAR GUARD ACTION

Situation:—A Blue battalion with six mounted scouts defeated in an engagement with a Red force (1 battalion of infantry and a platoon of cavalry—25 troopers) two miles north of Kickapoo, has been rapidly falling back, toward Fort Leavenworth by the road 45 -17 -H-, G Company, Capt. S, is the rear guard company. The battalion has succeeded in crossing Plum Creek bridge, and when the rear of G Company has reached 17 four of the Blue mounted scouts who had been left to blow up the bridge were seen to come scampering down the road with a detachment of hostile cavalry at their heels. Capt. S deploys two squads, opens fire on the hostile cavalry who then seek shelter in the trees near J. A. Aarons.

REQUIRED.

(1) Capt. S's estimate of the situation.
(2) His orders.

By command of the Governor,
JOSEPH B. SCULLY,
Brigadier General,
The Adjutant General.

Note:—Use 2 inch Map Fort Leavenworth, Kans. Answers to Problem to be mailed to The Adjutant General's office not later than March 12th.

GENERAL ORDERS No. 10.

STATE OF ALABAMA,
THE ADJUTANT GENERAL'S OFFICE,
Montgomery, March 3, 1914.

CORRESPONDENCE SCHOOL—INFANTRY.

FIELD SERVICE REGULATIONS.

1. In case of death, disability or absence of the Commander of a body of troops; who exercises command?
   (b) What is meant by the term Headquarters?
   (c) What units are provided with Staffs?
2. What are the duties of the Chief of Staff?
3. When reliable information of the Enemy cannot be obtained, what is assumed?

(b) What are the regulations in regard to spreading false information?
(c) Regarding information to be given Newspaper Correspondents?
4. What qualifications should a Rear Guard Commander possess?
(b) As a rule what are the distributions of the troops?
5. Discuss the Rear Guard in Action.
6. What is a successful March?
(b) How is good marching secured?
7. What is the duty of the Commander in regard to Preparation for the March?
(b) What is the order of march of a Column controlled mainly by?
8. How are Marches classified?
9. Why are night Marches made?
(b) What precautions should be taken?
10. The selection of Camp Sites is governed by what conditions?

Answers to above questions to be mailed to The Adjutant General's office not later than March 12th.

By command of the Governor,
JOSEPH B. SCULLY,
Brigadier General,
The Adjutant General.

Captain Wm. P. Screws, U. S. Infantry, the inspector-instructor of Alabama National Guard, recommends a more thorough instruction in the elementary features of military science, such as the schools of the soldier, squad and company. He believes that a thorough knowledge of these essentials is necessary to a proper comprehension of greater problems, in which opinion all military students will concur.

COLORADO.

INFANTRY.

For the infantry arm of the service Colorado maintains a correspondence school, and also has periodical conferences of officers. The senior inspector-instructor has prescribed the following course:

* * * * *

The course will include Military Topography, Infantry Drill Regulations, Field Service Regulations, and Problems in Minor Tactics. All Battalion and Company officers will be enrolled in this school and should be provided with the following textbooks:

I. D. R. (Infantry Drill Regulations).
F. S. R. (Field Service Regulations).
S. A. F. R. (Small Arms Firing Regulations).
A. R. (Army Regulations).

and a suitable textbook on Reconnaissance Sketching. The following are recommended:

Applied Minor Tactics, by Capt. J. A. Moss, U. S. A.
Rapid Reconnaissance Sketching, by Capt. C. O. Sherrill, U. S. A.
Elements of Military Sketching, by 1st Lieut. John B. Barnes, 5th U. S. Inf.

As a basis for company lectures and individual instruction "Making a Soldier," by Col. A. C. Sharpe, may be found helpful.

All these textbooks have been authorized by the War Department, and may be purchased through The Adjutant General's office.

Each student should also provide himself with a drawing board 13x14 inches and ½ inch thick, 4 thumb tacks, a compass, paper, pencils, and a ruler. A small level and protractor are desirable.

Student officers are invited to correspond direct with Colonel A. C. Sharpe, U. S. A., Inspector-Instructor, and to offer any suggestions which would facilitate the work of the course.

Regimental and battalion commanders are requested to assist in bringing this matter to the attention of their officers. Noncommissioned officers will be encouraged, but not required, to take the course.

* * * * *

Armory schools for infantry are instituted in each company. All officers below the rank of colonel are required to attend. These schools are under the general supervision of regimental commanders. After the conclusion of the course, a list of questions is mailed to student officers to test their knowledge of the studies pursued.

CAVALRY.

The inspector-instructor of cavalry for Colorado, Captain Julien E. Gaujot, U. S. Cavalry, has his headquarters in Denver. His office also extends to the cavalry of Arizona.

FIELD ARTILLERY.

The instruction of the field artillery now under the direction of 1st Lieutenant B. M. Bailey, 5th U. S. Field Artillery, who issues periodical bulletins from the office of The Adjutant General of the State. Battery officers are required to mail the answers direct to him. One of these bulletins, selected at random from a number of them, is given to illustrate the character of the questions:

CORRESPONDENCE SCHOOL FOR FIELD ARTILLERY, 1913.

SHEET NO. 7.

1. Explain the slide rule part of the Battery Commander's ruler. Use diagram.
2. (a) What do you understand by adjusting fire.
   (b) What three elements of fire must be constantly observed.
3. By standing on a hill in rear of your third piece, you can see target —no aiming points are visible—how would you establish parallel fire?
4. From the Battery Commander's observing station he can see several aiming points but is not sure that any of them are common to all guns.
   (a) How can he establish parallel fire by first using his B. C. telescope as an A. P. Explain what he will do and what will be done at the guns.
5. How do you get your A. S. when you are near your gun? What do you assume to be near?
6. Out of four shots fired, one is observed over the target and three short. Where is the center of impact with reference to the target—Range 2,000 yards? What change in range would you make?
7. What do you understand by the term burst interval?
8. You are adjusting with your left platoon, the target is 30 mils wide, the shot from third gun strikes left edge of target, the shot from fourth gun strikes 10 mils to right of third gun, what commands will you give to assure the next shots striking in proper place and to assure you proper distribution when you fire all guns.
9. How is the force of recoil and counter recoil checked? Describe fully the operation of all parts of mechanism.

10. You are marching in section column on narrow road and are attacked by Cavalry, what formation will you take? Explain fully what you would do.

1st Lt. B. M. Bailey, U. S. A.,
5th F. A., Inspector-instructor,
Adjutant General's Office,
Denver, Colorado.

Lieut. Bailey is also inspector-instructor of the artillery of Utah and New Mexico.

OREGON.

The following regimental order of the Third Infantry, National Guard of Oregon, is of particular interest because of the fact that Colonel Charles H. Martin, who commands that regiment, is an officer of the Regular Army (major of infantry) who has been permitted by the War Department to accept a State commission.

General Orders
No. 20.

Headquarters Third Infantry,
Oregon National Guard,
Portland, Oregon, Dec. 8, 1913.

I.

1. In accordance with G. O. 32, C. S., A. G. O., the following instructions governing the theoretical instruction of the Regiment for the school year of 1913-1914 are published for the information and guidance of all concerned:

2. The school year will end on March 31, 1914. No classes will be held from December 24, 1913, to January 1, 1914, inclusive.

3. The officers' courses indicated below will be taken by those officers stationed at Portland and Oregon City. Battalion Commanders are authorized to modify the courses at the other stations to meet local conditions.

II.—COURSES.

A. To consist of all Field Officers and such Captains who were attentive to the course followed at Portland last winter. This section to take up the study of drill regulations at "Combat" and finish the book, studying in connection therewith, Field Service Regulations.

B. To consist of all Captains not in the first section and all subalterns. This section will take up Drill Regulations at the beginning of the book, with each third recitation to be practical.

C. Non-commissioned officers' school will be held in each company under the direction of the Company Commander. While this course will be left somewhat to the Company Commander, the work will be closely enough supervised by Battalion Commanders that only elementary work shall be taken up by each company. Drill, patrolling, bayonet fighting, etc., much of which can be made practical.

III.—EXAMINATIONS.

1. As soon as practicable after the completion of the school year, each officer will be given an oral examination in the subjects assigned to his course. Officers reported proficient will be given a certificate to that effect, which will excuse them from future study on that subject, unless a new regulation is adopted by the United States. Proficiency will be certified upon the officer's passing 75 per cent. or better.

2. A similar examination will be given to non-commissioned officers and selected privates, and a certificate of proficiency given by the Regimental Commander upon a percentage of 75 per cent or better, which will entitle the holder to be excused from future study in the subject upon recommendation of his Company Commander.

IV.—ATTENDANCE.

1. All officers will be required to attend all classes unless excused by authority of The Adjutant General in each case.
2. Non-commissioned officers may be excused from attendance at classes by authority of the Regimental Commander.

V.—INSTRUCTORS.

1. The Regimental Commander will be the instructor in Course A.
2. The Instructor-Inspector will be the instructor in Course B.
3. Company Commanders, under the supervision of the Battalion Commanders, will conduct the classes in Course C, in their respective companies.
4. Classes in each course will be held weekly, the day selected to be suitable to the convenience of those concerned.

VI.—REPORTS.

1. At the end of each month, a report of all drills and classes, showing dates, attendance, etc., will be submitted to these headquarters. Blank forms for the rendition of this report will be furnished.

Absentees from recitations will be accounted for by name.

By order of COLONEL MARTIN;

CLARENCE R. HOTCHKISS,
Captain and Adjutant, Third Infantry.

This course of instruction is supplemented by a series of lectures by Regular Army officers. The Army and National Guard work in perfect harmony in Oregon, and the State troops were never in better shape.

A program of instruction for coast artillery is outlined in the following order:

GENERAL ORDERS No. 37.

HEADQUARTERS OREGON NATIONAL GUARD,
ADJUTANT GENERAL'S OFFICE,
Portland, Oregon, Nov. 29, 1912.

1. The following program of instruction and drill for the Coast Artillery Corps is published for the information and guidance of all concerned.
2. The goal toward which all should direct their efforts is to be efficient Artillery; that is, to be able to take charge of, care for, maintain and serve the Coast defenses without assistance and also to be efficient Infantry, that is to be able to take the field as an infantry regiment fully equipped and instructed.

It must be borne in mind that this cannot be accomplished in a short time, but will take years.

3. At least one weekly drill of one and one-half hours' duration will be held; if local conditions permit, additional time should be devoted to special instruction in subjects in which progress is unsatisfactory and also for the training of officers, non-commissioned officers, and selected privates.

Company Commanders will designate the day and hour for weekly drill and for special instruction.

4. The subjects for instruction for the period ending August 15, 1913, are as follows:

I. Coast Artillery.
II. Infantry.
III. Guard Duty.
IV. Administration.
V. First Aid and Hygiene.
VI. Instruction of Enlisted Men.
VII. Instruction of Officers.

I. *Coast Artillery*—

Instruction will be given in:

(*a*) Marching Maneuvers. (Chap. IV, C. A. D. R.)

(*b*) Service of the Piece. (Chap. VI, C. A. D. R.)
(*c*) Drill of Fire Control Section. (Chap. VII, C. A. D. R., especially paragraphs 487 to 497.)
(*d*) Gunnery. (Gunnery Instruction Pamphlet.)

At least half of each weekly drill (or its equivalent) should be devoted to the above work.

II. *Infantry*—
Instruction will be given in:
(*a*) Close Order Drill.
(*b*) Extended Order Drill.
(*c*) Sighting and Aiming Drills.
(*d*) Gallery Practice.
(*e*) Small Arms Practice.

About one-half of the time should be devoted to Infantry, deducting that devoted to Guard Duty, Administration, First Aid, etc.

III. *Guard Duty*—
Instruction in Guard Duty should be practical.
Instruction of entire Company should include duties of:
"Orderly for the Commanding Officer."
"Privates of the Guard."
"Orders for Sentinels," etc.
For Corporals add duties of "Corporal of the Guard."
For Sergeants, add to foregoing, duties of "Sergeant of the Guard."
For Officers, add to foregoing duties of "Commander of the Guard" and "Officer of the Day."

IV. *Administration*—
Instruction should be given to all officers, selected non-commissioned officers, and privates, and should include preparation of all reports and returns required of a Company of the Militia by the State and Federal authorities, and study of the "Rules and Regulations of Oregon National Guard" and the Federal "The Organized Militia Regulations."

V. *First Aid and Hygiene*—
Company Commanders are authorized to call on the senior officer of the Medical Corps at their home station to give instruction in First Aid and in Hygiene, at a time to be decided after mutual consultation.
At least two hours during the year should be devoted to this work.

VI. *Instruction of Enlisted Men*—
Too much care cannot be exercised in the instruction of the recruits when they first join the Company. This should be made thorough but not onerous, but the recruit should not be placed in the ranks for Company drill until he knows the "School of the Soldier" and he should not begin small arms practice until he has had "Sighting and Aiming Drills" and "Gallery Practice."
If practicable, parts of this instruction should be imparted at special drills.

VII. *Instruction of Officers*—
Officers should know the subjects and instruct the men, but it is realized that this is not always the case. In such instances, some instruction even if partly erroneous is better than none at all, and at least the text-book can be used for joint instruction, but the better way is for the officer to instruct himself and then do the best he can to impart his knowledge to his men.
Officers should take advantage of every opportunity to learn the subjects specified in this order, and in addition those specified in G. O. 166 W. D. 1911, under "Basic Course for All Officers."
Company Commanders are reminded that they are responsible for the proper instruction of their officers.
Staff officers and non-commissioned staff officers will attend instruction, especially in Artillery work, with the Company where they reside. This confers no authority for them to interfere with the work of the Company Commander.
By order of the Commander-in-Chief.

JOSEPH BAUMGARTNER,
Adjutant General.

INSTRUCTION IN PATROLLING.

NATIONAL GUARD INSTRUCTION IN THEORY AND PRACTICE OF SCOUTING.

DETACHMENT OF CO. M., 1ST INF., V. N. G., ON THE LONG TRAIL IN THE GREEN MOUNTAINS.

VERMONT.

Vermont first instituted a service school in 1908, which has been changed in minor features since, and at present conforms to the general outlines of the following extracts from State orders:

* * * * *

All officers of the line of the First Infantry are required to take the prescribed course in the Service School, Vermont National Guard, unless especially exempted. The course will consist of 42 lessons covering a period of three years, and will embrace the following subjects:

1. Infantry Drill Regulations—5 lessons.
2. Manual of Guard Duty—3 lessons.
3. Small Arms Firing Regulations—3 lessons.
4. Map Reading and Orientation—3 lessons.
5. Field Service Regulations—7 lessons.
6. Minor Tactics:
   - (*a*) Patrolling—1 lesson.
   - (*b*) Advance Guard—1 lesson.
   - (*c*) Outpost—1 lesson.
   - (*d*) Attack—1 lesson.
   - (*e*) Defense—1 lesson.
   - (*f*) Rear Guard—1 lesson.
7. State Regulations—1 lesson.
8. Militia Regulations—1 lesson.
9. Tactics (Map Problems)—3 lessons.
10. Field Engineering—4 lessons.
11. Military Law and Procedure—3 lessons.
12. Military Topography—3 lessons.

2. In addition to the above all officers will receive practical and theoretical instruction in the following subjects:

Company papers.
Care of troops.
Care and preservation of the rifle.
Kitchen management and expedients.
Camp sanitation.
Military sketching.
Law of Riot Duty.

3. Two subjects will be taken simultaneously throughout the school season which will continue from October to April, both months inclusive, in each fiscal year. A mark of 75% in a given subject will be required to enable an officer to be considered as proficient therein. Officers who attain an average of 95% in any subject will be exempted from professional examination in that subject for a period of three years. Officers found proficient in any subject will be exempted from examination in that subject for a period of one year. At the end of the school year the relative standing of officers in the different subjects pursued will be published.

4. Monthly sets of questions and practical problems in the two subjects for that month will be prepared, and such questions will be mailed to each student officer on or before the first of each month during the school season. Student officers will prepare answers and solutions, and forward the same in season to reach the designated Instructor by the 16th of that month. *Failure to forward solutions by the required time will not be excused except in case of sickness or absence from the state.* Each student will be rated on his solution by one or more Instructors and his manuscript showing the percentage attained and indicated errors, together with an approved solution of the particular test, will be returned by the 1st of the succeeding month.

* * * * *

General Lee S. Tillotson, The Adjutant General of Vermont, in a note to the author states, "the school is now under the entire control

of the inspector-instructor," (Capt. L. J. Mygatt, 5th U. S. Inf.). This is evidenced in the following order:

General Order No. 37.

State of Vermont,
The Adjutant General's Office,
St. Albans, Oct. 17, 1913.

1. Monthly sessions of the Service School, 1st Infantry, V. N. G., are hereby authorized to be held at Montpelier, Burlington and Bellows Falls, commencing in November, 1913, and continuing, in the discretion of the Inspector-Instructor, until and including April, 1914.

2. The Inspector-Instructor, with the approval of the Regimental Commander, will make all arrangements for the sessions of the School, designate the officers who shall attend at each session, prescribe the course of instruction, detail assistant instructors, etc. Each session of the School will be conducted by the Inspector-Instructor, who will report to this office the names of the officers in attendance. At the close of the School year the Inspector-Instructor will make a general report, covering the work of the year, and the result will be published in orders from this office.

3. The Quartermaster General will provide for the actual necessary expenses of officers attending the School, and other incidental expenses, pertaining thereto.

By command of Gov. Fletcher.

Lee S. Tillotson,
The Adjutant General,
Chief of Staff.

APPENDIX I.

The following list of questions are representative of what may be asked at any examination in the future for entrance to the United States Military Academy at West Point, New York. The questions are to be in no way considered as including any likely to be asked in future tests. They represent the scope of the examination only. Each subject is introduced by a resumé of the points considered most important:

Algebra.—Candidates will be required to pass a satisfactory examination in that portion of *algebra* which includes the following range of subjects: definitions and notation; the fundamental laws; the fundamental operations, viz.: addition, subtraction, multiplication and division; factoring; highest common factor; lowest common multiple; fractions, simple and complex; simple, or linear, equations with one unknown quantity; simultaneous, simple, or linear, equations with two or more unknown quantities; involution, including the formation of the squares and cubes of polynomials; binomial theorem with positive integral exponents; evolution, including the extraction of the square and cube roots of polynomials and of numbers; theory of exponents; radicals, including reduction and fundamental operations, rationalization, equations involving radicals, operations with imaginary numbers, quadratic equations; equations of quadratic form; simultaneous quadratic equations; ratio and proportion; arithmetical and geometrical progressions. Candidates will be required to solve problems involving any of the principles or methods contained in the foregoing subjects:

The following questions were used at a recent examination:

1. (*a*) Simplify $[(x-y)^2+6xy]-\left[(x^2+2xy)-\left\{x^2-[2xy-(4xy-y^2)]\right\}-(-x^2-2xy)\right]$.

   (*b*) Factor (1) $a^9b^9+64c^6$ (2) x^2-y^2-2y-1 (3) x^3-3x^2+4.

2. Solve $\sqrt{\frac{4}{x^2}+5}-\sqrt{\frac{4}{x^2}-5}=2$. Prove that your answers are correct.

3. How many terms will there be in the expansion of $(a^{\frac{1}{10}}+b^{\frac{1}{2}})^{15}$ by the Binominal Formula? Write the 6th term in the simplest form. What other term will have the same coefficient? Write down this term and simplify it.

4. A number of workmen, who receive the same wages, earn together a certain sum. Had there been 7 more workmen, and had each one received 25 cents more, their joint earnings would have increased by $18.65. Had there been 4 fewer workmen, and had each one received 15 cents less, their joint earnings would have decreased by $9.20. How many workmen are there, and how much does each one receive?

5. (*a*) Find the value of $5x^3+2x^2-3x-1$ when $x=1\sqrt{-4}$.

   (*b*) Simplify $\left(\sqrt[6]{x^{\frac{4}{3}}}\right)^{-\frac{3}{2}}$

6. Two trains run toward each other from A and B respectively, and meet at a point which is 15 miles further from A than it is from B. After the trains meet, it takes the first train 2⅔ hours to run to B, and the second 3⅜ hours to run to A. How far is it from A to B?

7. Solve $\begin{cases} \left(\frac{1}{a}+\frac{1}{b}\right)x+\left(\frac{1}{a}-\frac{1}{b}\right)y=4. \\ \frac{x}{a+b}+\frac{y}{a-b}=2. \end{cases}$

8. (*a*) Deduce a test for finding when the roots of the equation $ax^2+bx+c=0$ are: 1° real and unequal; 2° real and equal; 3° imaginary; 4° numerically equal with contrary signs.

(*b*) Apply the tests to find the nature of the roots of the equations

$$1°\ 3x^2+4x-10=0$$
$$2°\ 5x^2+6=0$$

9. Given a square whose side is 2. The middle points of its adjacent sides are joined by straight lines forming a second square inscribed in the first. In the same manner, a third square is inscribed in the second, a fourth in the third, and so on indefinitely. Find the sum of the perimeters of all the squares.

Substitute for any one of the above.—A person has $6,500, which he divides into two portions and lends at different rates of interest, so that the two portions produce equal returns. If the first portion had been lent at the second rate of interest, it would have produced $180; and if the second portion had been lent at the first rate of interest, it would have produced $245. Find the rates of interest.

Plane Geometry.—Candidates will be required to give accurate definitions of the terms used in *plane geometry*, to demonstrate any proposition of plane geometry as given in the ordinary textbooks and to solve simple geometrical problems either by a construction or by an application of algebra.

The following questions were used at a recent examination:

1. Theorem: The three medians of any triangle intersect in a common point which is at two-thirds of the distance from each vertex to the middle of the opposite side.

2. Theorem: If two triangles have their three sides respectively equal, the triangles are equal in all respects.

3. (a) How many circles can be drawn tangent to three given straight lines? (b) Problem: To draw a circle through a given point and tangent to two given straight lines.

4. Theorem: If two parallel right lines be divided into corresponding parts, proportional each to each, and straight lines be drawn through the corresponding points of division, these straight lines will pass through a common point.

5. Exercise: Find the locus of all points, the sum of the squares of the distances of any one of which from two fixed points is equal to a given square.

6. Problem: Given two circles, to construct a third circle equivalent to their difference.

7. Exercise: If the radius of a circle is 5, find the area of the segment subtended by the side of a regular hexagon.

8. Theorem: The areas of two triangles which have an angle of the one equal to an angle of the other, are to each other as the products of the sides including those angles.

9. Problem: Through a given point on one side of a triangle to draw a right line which shall divide the triangle into two equivalent areas.

Substitute for any one of the above.—(a) Define *commensurable quantities; incommensurable quantities.* Give example of each. (b) Theorem: In the same circle or equal circles, two angles at the centre, have the same ratio as their intercepted arcs (whether commensurable or incommensurable).

English Grammar.—Candidates must have a good knowledge of *English grammar;* they must be able to define the terms used therein; to define the parts of speech; to give inflections, including declension, conjugation and comparison; to give the corresponding masculine and feminine gender-nouns; to give and apply the ordinary rules of syntax.

They must be able to parse correctly any ordinary sentence; giving the subject of each verb, the governing word of each objective case, the word

for which each pronoun stands or to which it refers, the words between which each preposition shows the relation, precisely what each conjunction and each relative pronoun connects, what each adjective and adverb qualifies or limits, the construction of each infinitive, and generally to show a good knowledge of the function of each word in the sentence.

They must be able to correct in sentences or extracts any ordinary grammatical errors.

It is not required that any particular textbook shall be followed; but the definitions, parsing, and corrections must be in accordance with good usage and common sense.

The examination may include questions similar to the following:

1. a. He comes, the herald of a noisy world. b. Next Anger rushed, his eyes on fire. c. Get on your night-gown, lest occasion call us and show us to be watchers. d. Hark! Hark! the lark at heaven's gate sings. e. Why do you stay so long, my lords of France? f. Go you before to Gloucester with these letters. g. Society has been called the happiness of life. h. The guardsman defended himself bravely. i. They that reverence too much old times are but a scorn to the new. *than* it *will* in many places with any amount of *care*."—Henry D. Thoreau. j. I will bring you certain news from Shrewsbury.

In the above sentences pick out the following grammatical constructions. (Indicate the number of the sentence and write the word or words which answer the question.)

Imperative mood. Abstract noun. Transitive verb. Two relative pronouns. Noun in apposition. Verb in subjunctive mood. Adverb of manner. Relative pronoun. Indirect object. Interjection.

2. Write a simple sentence containing a compound subject. Write a simple sentence containing a compound predicate. Write a complex sentence containing an adjective clause. Write a complex sentence containing an adverbial clause of manner. Write a sentence containing a preposition with a compound object. Write a sentence containing an adverb clause of time. Write a sentence containing a noun (or substantive) clause used as the subject of the sentence. Write a complex sentence containing an adverb clause of place. Write a sentence containing an adjective phrase and an adverb phrase. Write a sentence containing a verb in the passive voice.

3. Write sentences containing the following: The Preterite (or Past) Tense (active voice) of the verb "choose." The Perfect Tense (active voice) of the verb "swim." The Pluperfect (or Past Perfect) Tense (active voice) of the verb "burst." The Future Perfect Tense (active voice) of the verb "eat." The Perfect Tense (active voice) of the verb "know." The Present Participle of the verb "lie." The Perfect Infinite of the verb "study." The Perfect Participle of the verb "knock." The Future Tense, Passive Voice, of the verb "defeat." The Future Perfect Tense, Passive Voice, of the verb "pay."

4. In the passage below, indicate the gender of all the nouns and pronouns by the following device: underscore once those that are masculine; twice those that are feminine; thrice all those that are neither.

"The bride kissed the goblet, the knight took it up.
He quaffed off the wine, and he threw down the cup,
She looked down to blush, and she looked up to sigh,
With a smile on her lips and a tear in her eye.
He took her soft hand ere her mother could bar,—
"Now tread we a measure!" said young Lochinvar.
So stately her form and so lovely her face,
That never a hall such a galliard did grace;
While her mother did fret, and her father did fume,
And the bridegroom stood dangling his bonnet and plume;
And the bride-maidens whispered, "'Twere better by far
To have matched our fair cousin with young Lochinvar."

5. Write sentences containing the following: An auxiliary verb. The comparative of "recent." The superlative of "bad." The plural of "lilly." The masculine of "witch." An intransitive verb. A collective noun. The comparative of "lazy." The plural of "shelf." The plural of "ruby."

6. Parse the words in italics in the following sentence: "Some soils, *like* the rocky tract *called* the Estabrooke Country in *my* neighborhood, as so suited to the apple, that it will grow *faster* in *them without any* care,

7. Correct all the errors in the following: The man which committed the murder was hung. Who can this letter be from? It is me that he fears. The red rose smells sweetly, but the yellow one does not smell so good. He asked if either of the men could identify their own clothing.

8. Punctuate and capitalize the following: It was old dr parr who said or sighed in his last illness oh if i can only live till strawberries come the old scholar imagined that if he could weather it till then the berries would carry him through no doubt he had turned from the drugs and the nostrums or from the hateful food to the memory of the pungent penetrating and unspeakably fresh quality of the strawberry with the deepest longing the strawberry is always the hope of the invalid and sometimes no doubt his salvation it is the first and finest relish among the fruits and well merits dr botelers memorable saying that doubtless god could have made a better berry but doubtless god never did john burroughs

English Composition and English Literature.—Candidates will be required:

1. By the writing of short themes on subjects chosen by themselves within limits set by the examination paper, to prove (a) their ability to spell, capitalize, and punctuate, and (b) their mastery of the elementary principles of composition, including paragraphing and sentence structure.

2. To give evidence of intelligent acquaintance with three plays of Shakespeare: one comedy, one history, and one tragedy—*The Merchant of Venice*, *Henry V*, and *Macbeth* being especially recommended.

3. To exhibit a fair knowledge of the history of English literature and of the names of the most prominent authors, and of the names of their principal works.

The general character and scope of the examination are indicated by the following specimen:

1. In a few paragraphs (about 250 words) tell the most important facts about the life and works of any *one* of the following authors: Robert Burns, John Milton, John Keats, Edgar AllanPoe, Alfred Tennyson, Charles Dickens.

2. In a few paragraphs (about 250 words) discuss the Victorian period in English Literature, paying attention to the following points: (a) the characteristics of the literature, (b) the chief writers, both in prose and poetry.

3. In a few paragraphs (about 250 words) discuss the Puritan period in English literature, telling what is meant by the term, the object and results of the Puritan movement, the chief writers with their works, and the main characteristics of the literature.

4. Elective Question (may be chosen in place of either 2 or 3). Write a few paragraphs (250 words) on the characteristics and importance of the works of the Concord writers, Emerson, Hawthorne, and Thoreau, mentioning the chief works of each.

5. Write two compositions of about 200 words each, selecting your subjects from the following list: a. The story of the chase. (Lady of the Lake—Scott.) b. Silas Marner's Early Life. (Silas Marner—George Eliot.) c. The Story of Jessica. (Merchant of Venice—Shakespeare.) d. The Character of Brutus. (Julius Cæsar—Shakespeare.) e. The Story of Ida and the Prince. (The Princess—Tennyson.) f. The Trial of Rebecca. (Ivanhoe—Scott.) g. The Murder of Duncan. (Macbeth—Shakespeare.) h. Character Sketch of the Ancient Mariner. (The Ancient Mariner—Coleridge.) i. Threshing Day on a Western Farm. j. The Village Drug Store. k. Along the Wharves in a Seaport Town. l. An Irrigated Farm. m. A Cotton Mill. n. An Accident.

Geography.—Candidates will be required to pass a satisfactory examination in *descriptive geography* and the elements of *physical geography*. A preponderance of weight is attached to a knowledge of the geography of the United States.

In descriptive geography of the United States, candidates should be thoroughly informed as to its general features and boundaries; adjacent oceans, seas, bays, gulfs, sounds, straits, and islands; lakes, the location and extent of mountain ranges; the sources, directions, and terminations of the important rivers, the names of their principal tributaries, and at what points, if any, these rivers break through highlands on their way to the ocean; the water routes of communication from one part of the

country to another; the location and termination of important railroad lines; the boundaries of the several States and Territories and their order along the coasts, frontiers and principal rivers; the locations and boundaries of the island possessions; and the names and locations of the capitals and other important cities of the several States, Territories and island possessions.

In short, the knowledge should be so complete that a clear mental picture of the whole of the United States is impressed on the mind of the candidate.

In descriptive geography of other countries, candidates should be familiar with the continental areas and grand divisions of water; the earth's surface, the large bodies of water which in part or wholly surround the grand divisions of the land; the capes, from what parts they project and into what waters, the principal peninsulas, location, and by what waters embraced; the parts connected by an isthmus; the principal islands, location and surrounding waters; the seas, gulfs, and bays, the coasts they indent and the waters to which they are subordinate; the straits, the lands they separate, and the waters they connect; the locations of the principal lakes; the locations, boundaries, capitals and principal cities of the political divisions of the world.

In physical geography, candidates should be familiar with the relief of the earth's surface; the principal mountain systems, the river systems and watersheds; the coastal and lake plats: and the influence of climate, soil, mineral deposits and other physical features on the resources, industries, commercial relations and development of a country and its people, especially of the United States.

The following questions were used at a recent examination:

1. Define (a) Geography, (b) Physical Geography, (c) strait, (d) isthmus, (e) isotherm.

2. In respect of climate, into what zones is the earth's surface divided? Name the circles separating these zones from one another. In what zone are the Philippines?

3. (a) What and where is the International Date Line? (b) In going from San Francisco to Manila is a day lost or gained? Give reasons for answer.

4. How many "times" has the United States? What are they?

5. What waters surround the United States?

6. Is it possible to go from Duluth to Detroit by water? If so, what bodies of water would be passed through?

7. Name the larger islands of the Philippines, and of the Hawaiian Group, respectively. On what island is Manila? Honolulu? Iloilo?

8. Name two great coal regions of the United States.

9. What is (a) the most northern State of the United States? (b) the most southern? (c) the most eastern? (d) the most western?

10. Which of the United States has the longest coast line?

11. Where is the Mohawk Valley?

12. Bound—Michigan, Kentucky, Connecticut.

13. Locate accurately the following cities—El Paso, Albany, Zamboanga, Panama, San Antonio, Kalamazoo.

14. Name the transcontinental railways west of the Mississippi in order from north to south.

15. Name the countries of Central America. Which one of these borders on Mexico?

16. Name in order, beginning at the Isthmus of Panama, the countries of South America that touch on the Caribbean Sea and the Atlantic Ocean.

17. The meridian through Atlanta, Georgia, intersects what South American Republics? Is the continent of South America, as a whole, east or west of the United States?

18. What two countries of South America have no sea coast?

19. A vessel goes from London, England to San Francisco by the Suez Canal. Through what waters does it pass?

20. What waters connect the black Sea with the Mediterranean? The Gulf of Aden with the Red Sea?

21. Where does the Danube rise? through what countries does it flow? and where does it empty?

22. What three rivers flow north into the Arctic from Siberia?

23. What mountains lie between France and Spain? Between Tibet and India?

24. Name in order in a clockwise direction the countries bordering on the Mediterranean.

25. Where is—Mount Shasta, Popocatepetl, Chimborazo, Everest, Apo, Fujiyama, Blanc, Mayon.

26. Where and what is—Mukden, Vladivostok, Liberia, Melilla, The Celebes.

27. Locate—Elba, Saint Thomas, Cape Race, Hankow, Formosa, Bonin Island, Juarez, Zanzibar, Colon, Volga River, Elbe River, Cebu, Seville, Andalusia, Zaragoza, Macedonia, Nepaul, Bogota, Beirut, Malta, Macao, Dublin.

28. Name the capitals respectively of—Afghanistan, Portugal, Nebraska, Vermont, French Indo-China, Philippine Islands, Montenegro, Georgia, Oregon, Roumania, Persia, Florida, Java.

History.— Candidates must be thoroughly familiar with so much of the History of the United States, and of Ancient Greece and Rome as is contained in good high-school textbooks on these subjects, and must have a good knowledge of the important facts in General Ancient History and in the History of Medieval Europe to the end of the fifteenth century.

In History of the United States, the examination will include questions concerning early discoveries and settlements; the forms of government in the colonies; the causes, leading events, and results of wars; important events in the political and economic history of the nation since its foundation; and the elementary principles of civil government with special reference to the federal congress, executive and judiciary.

In Ancient History, the examination will include questions on important persons and events in the lengendary and authentic history of Greece and Rome, and on general important facts in the history of other ancient peoples, taking some account also of Greek art, of Greek and Roman literature, and especially of Roman government.

In History of Medieval Europe, the greater emphasis will be laid on the period from Charlemagne to the end of the Middle Ages, particularly on events connected with the political and social development of England.

Questions similar to the following in character and scope are likely to be asked:

1. a. Name the two dynasties which existed during the most eventful period of Egyptian History. b. What arts and sciences were especially cultivated in ancient Egypt?

2. a. Who were the Phœnicians and what was their chief industry? b. By whom were they conquered? c. Mention two of their important colonies.

3. a. Who were the Medes? b. What leader overthrew the Medes? c. Give briefly the wars of conquest of Darius I.

4. a. Which were the two important States of ancient Greece? b. Why did the States of Greece not acquire a strong national unity?

5. a. Who was Drace? What important services did he perform? b. What was the nature of the reforms of Solon?

6. State concisely the chief significance of the following—a. Miltiades, b. Thermopylæ, c. Pericles, d. Themistocles, e. Thucydides, f. Platæa.

7. State clearly what the influence of the Confederacy of Delos was on the history of Athens.

8. a. What were the immediate causes of the Peloponnesian War? b. How long did the war last? c. What was the result?

9. a. What decisive battle under the leadership of Philip of Macedon showed the power of the Macedonian phalanx? b. Who succeeded to the place and powers of Philip of Macedon? c. Who were the opposing forces and principal leaders in the battle of Arbela? What was the effect of this battle upon the civilization of Western Asia?

10. a. What was the important political advantage gained by the first plebian secession in the early history of the Roman Republic? b. What were the "Laws of the Twelve Tables?"

11. a. Who was Pyrrhus and what was his ambition? b. Cause and result of his war with the Romans?

12. a. What was the immediate cause and what was the final result of the Third Punic War? b. Discuss briefly the conspiracy of Catiline.

13. a. What reforms did the Gracchi seek? b. What revolutionary act did Tiberius Gracchus commit?

14. a. Name the members of the First Triumvirate. b. What duties did each member assume and what advantages did each member gain from it?

15. a. Why did Cæsar cross the Rubicon (B. C. 49)? What was the importance of this act? b. Narrate briefly the events by which Octavius Cæsar attained supreme power.

16. a. Who was Mohammed? b. What is meant by "the Hegira?" c. What is the Koran?

17. a. What questions regarding the civilization of Europe were decided in the Battle of Chalons and Tours? b. Who was the leader of the victorious side in the battle of Tours?

18. a. How did Duke Pepin become King of the Franks? b. Who were the leading actors in the restoration of the Empire in the West?

19. a. In what countries did the feudal period reach its height? What are the main characteristics of feudalism? b. Give the causes of the decay of feudalism.

20. Identify the following—a. Battle of Hastings, b. Peter the Hermit, c. The Hussites, d. Hildebrand (Pope Gregory VII), e. Dante.

21. a. What were the causes of the Hundred Years' War? b. What effect did the Battle of Crecy have upon Feudalism and Chivalry?

22. a. What important instrument was King John of England forced to give his people? b. Mention some of the important articles of this instrument? c. What was decided at the battle of Bannockburn?

23. a. What brought about the union of the two most important states of Spain? b. What effect did this have on the Moorish power in Spain?

1. State concisely the achievements of—a. DeNarvæz, b. DeSoto, c. Hudson, d. LaSalle.

2. a. Where and when was the first permanent English settlement in America made? b. What arrangement was made for the government of this settlement?

3. a. When and where did the first colonial assembly in America meet? b. What was Bacon's Rebellion? c. When and where was the first permanent English settlement in New England established?

4. a. What brought the first settlers to Maryland? b. Who was their leader?

5. a. What was the immediate cause of the Revolutionary war? b. What were "writs of assistance?" c. What was the "Mutiny Act?"

6. a. When and where did the first Continental Congress meet? b. What was accomplished by this Congress? c. Name the original thirteen colonies.

7. a. Who were the principal leaders in the two Battles of Saratoga? b. What were the effects on the American people of these battles? c. What was the Wyoming Massacre?

8. a. What European country was the first to acknowledge the American Independence? b. In what ways did this country aid in bringing the Revolutionary war to a successful close?

9. State the significance of the following in U. S. history—a. Shay's Rebellion, b. Steuben, c. Alien and Sedition laws, d. Kosciusko.

10. a. What were the causes of the war with England in 1812? b. What treaty ended this struggle? c. Who was President of the United States during this war?

11. By what means, from whom, and during whose Presidency were the following territories obtained for the United States?—a. Louisiana, b. Florida, c. Alaska.

12. a. What was the "Spoils System?" b. What was the Nullification ordinance passed by South Carolina in 1832?

13. Discuss briefly the nature and importance of the following—a. The Wilmot Proviso, b. The Dred Scott Decision, c. The Fugitive Slave Law.

14. Name the commanders and the results of the following battles—a. Vicksburg, b. Fredericksburg, c. Cold Harbor.

15. Name the Presidents of the United States who have had a second term of office.

16. a. What various causes underlay the declaration of war against Spain? b. What important battles on land and sea were fought during the

Spanish-American war? c. What treaty ended this war and what territory was ceded to the United States as a result of it?

17. How is an amendment to the Constitution of the United States made?

APPENDIX II.

The following set of questions was asked in the written part of a recent preliminary examination for appointment to the Medical Corps of the United States Army. The satisfactory passing of the preliminary examination is requisite to entrance to the Army Medical College at Washington, D. C.:

EXAMPLES OF WRITTEN QUESTIONS.

ANATOMY.

1. Give the anatomy of the spermatic cord.
2. Give the boundaries, floor, and contents of Scarpa's triangle.
3. Describe the spinal cord.
4. Give the anatomy of the cæcum, ascending, transverse, and descending colon, and their relations.
5. Describe the sphenoid bone.
6. Give the origin, insertion, and action of the following muscles:
   (1) Soleus.
   (2) Peroneus tertius.
   (3) Teres major.
   (4) Scalenus anticus.
   (5) Gastrocnemius.

PHYSIOLOGY AND HISTOLOGY.

1. What features would enable you to distinguish a section of the pancreas from a section of the parotid gland?
2. Define the following physiological terms concerning the phenomena of muscle—contracture, tetanus, summation, muscle tonus, and rigor.
3. (a) What are the causes of intravascular clotting? (b) How is blood regenerated after hemorrhage?
4. Describe the digestion and absorption of fats.
5. What changes take place in an artery and in the circulation after ligation?
6. Describe a tubule of the kidney and state the functions of its different portions.
7. Describe the mechanism of vision.
8. State the origin and function of lymph and describe its physical characters.
9. Discuss the corpus luteum. Does it indicate pregnancy? Explain.
10. What are the Wolffian bodies and what becomes of them?

Answer eight questions only, value of each 12½ per cent.

CHEMISTRY AND PHYSICS.

1. Define atomic weight; molecular weight. The weight of what atom is taken as a standard?
2. State in detail the physical and chemical properties of oxygen. Explain the terms, "combustion," "slow combustion," and "supporter of combustion."
3. What is carbon monoxide? Describe its physical and chemical properties.
4. State the composition (formula) and describe the properties of hydrochloric acid. Give tests by which it may be recognized.

5. In what principal forms or combinations is potassium found in nature and from what source is the chief supply of potassium obtained? Give its chemical properties.

6. What is the general constitution of alcohols? Of ethers? Mention one of each with formula.

7. What is meant by "equilibrium of forces?" Give diagram.

8. Discuss the contraction or expansion of matter as the result of variations of temperature. At what temperature has water the greatest density? Why does ice float?

9. What is the solar spectrum? What are "bright line" spectra? "Dark line" spectra?

10. What is meant by the terms "current"; "electromotive-force"; "resistance"; and "potential" as applied to electricity and electric apparatus?

MATERIA MEDICA AND THERAPEUTICS.

1. What are the symptoms in chronic lead poisoning and how should the condition be treated?

2. In what conditions and in what manner is hypodermoclysis employed?

3. What are the causes of deficient excretion of urea? What diet and drugs are indicated as remedies for the condition?

4. What is the treatment for obstinate hiccough?

5. How is milk "pasteurized"?

6. What is glycerin?

7. How would you put a patient into a "hot pack"?

8. How does radium act remedially on neoplasms of the skin?

9. Contrast the use of morphin, codein, and heroin.

10. Write a prescription in unabbreviated Latin for a tonic in pill form giving directions in English.

SURGERY.

1. Give the symptoms of and describe an operation for the correction of movable kidney.

2. Describe the indications and the technic for paracentesis of the membrana tympani.

3. Describe in detail two methods for the reduction of a dislocation of the shoulder joint.

4. Describe three methods for the radical cure of hemorrhoids with reasons for the employment of each method.

5. Give the more common symptoms of chronic appendicitis and state the symptoms that indicate extreme urgency for operation.

6. Outline the surgical treatment of gunshot wounds of the abdomen.

7. Describe in detail the application of two methods of the non-operative treatment of epithelioma of the skin.

8. Describe the surgical treatment of the various types of stricture in the male urethra.

9. Give the symptoms requiring curettage of the uterus and describe in detail the technic of the operation.

10. Name the complication that may arise from undescended testes and describe an operation for its correction.

PRACTICE OF MEDICINE.

1. Discuss the causes and evidences of aortic insufficiency.

2. Discuss the diagnosis and treatment of an early case of pulmonary tuberculosis.

3. Give the symptoms and blood findings of pernicious anæmia.

4. Give the symptoms and treatment of acute cholecystitis.

5. How is a positive diagnosis of syphilis made in the primary stage?

6. How is a diagnosis made of thrombosis of a mesentery blood vessel?

OBSTETRICS AND GYNECOLOGY.

1. Describe briefly a method of hysterectomy.

2. Give reason for and describe in brief amputation of the cervix uteri.
3. Give briefly the symptoms of pregnancy.
4. Symptoms and diagnosis of breech presentation.
5. Treatment of impacted mento-posterior position.
6. Give important measurements of the fœtal skull.
7. Give treatment of abortion.

APPENDIX III.

NAMES AND LOCATION OF GARRISONED POSTS OF THE UNITED STATES (APRIL, 1914).

In the following list of the Garrisoned Posts of the United States the words in parenthesis indicate the military jurisdiction of the post. The nearest town or city is also given:

Adams, Ft., R. I. (Eastern Dept.) Newport, R. I.
Andrews, Ft., Mass. (Eastern Dept.) Boston, Mass.
Apache, Ft., Ariz. (Southern Dept.)
Armistead, Ft., Md. (subpost of Ft. Howard). (Eastern Dept.) Baltimore, Md.
Armstrong, Ft., H. T. (subpost of Ft. Ruger). (Hawaiian Dept.) Honolulu, H. T.
Army and Navy General Hospital, Ark. Hot Springs, Ark.
Augusta Arsenal, Ga. Augusta, Ga.
Baker, Ft., Cal. (Western Dept.) Sausalito, Cal.
Banks, Ft., Mass. (Eastern Dept.) Boston, Mass.
Barrancas, Ft., Fla. (Eastern Dept.) Pensacola, Fla.
Barry, Ft., Cal. (Western Dept.) Sausalito, Cal.
Bayard, Ft., General Hospital, N. Mex. Bayard, N. Mex.
Benicia, Arsenal, Cal. Benicia, Cal.
Benjamin Harrison, Ft., Ind. (Central Dept.) Indianapolis, Ind.
Bliss, Ft., Tex. (Southern Dept.) El Paso, Tex.
Boise Barracks, Idaho. (Western Dept.) Boise, Idaho.
Brady, Ft., Mich. (Central Dept.) Sault Ste. Marie, Mich.
Canby, Ft., Wash. (subpost of Ft. Stevens, Oreg). (Western Dept.) Ilwaco, Wash.
Carroll, Ft., Md. (subpost of Ft. Howard). (Eastern Dept.) Baltimore, Md.
Casey, Ft., Wash. (Western Dept.) Port Townsend, Wash.
Caswell, Ft., N. C. (Eastern Dept.) Southport, N. C.
Cayey, Porto Rico. (See Henry Barracks.)
Clark, Ft., Tex. (Southern Dept.) Brackettville, Tex.
Columbia, Ft., Wash. (Western Dept.) McGowan, Wash. (Southern Dept.) Columbus, N. M.
Columbus Barracks, Columbus, Ohio. Columbus, Ohio.
Columbus, N. M. (Southern Department).
Constitution, Ft., N. H. (Eastern Dept.) New Castle, N. H.
Crockett, Ft., Tex. (Eastern Dept.) Galveston, Tex.
Crook, Ft., Nebr. (Central Dept.)
Dade, Ft., Fla. (Eastern Dept.) Palmetto, Fla.
D. A. Russell, Ft., Wyo. (Central Dept.) Cheyenne, Wyo.
Davis, Ft., Alaska. (Western Dept.) Nome, Alaska.
De Russy, Ft., H. T. (subpost of Ft. Ruger). (Hawaiian Dept.) Honolulu, H. T.
Des Moines, Ft., Iowa. (Central Dept.) Des Moines, Iowa.
De Soto, Ft., Fla. (subpost of Fort Dade). (Eastern Dept.) Tampa, Fla.
Douglas, Ariz. (Southern Dept.)
Douglas, Ft., Utah. (Western Dept.) Salt Lake City, Utah.
Du Pont, Ft., Del. (Eastern Dept.) Delaware City, Del.
Eagle Pass, Tex. (Southern Dept.) Eagle Pass, Tex.
El Paso, Tex. (Southern Dept.)

Ethan Allen, Ft., Vt. (Eastern Dept.) Burlington, Vt.
Flagler, Ft., Wash. (Western Dept.) Port Townsend, Wash.
Foster, Ft., Me. (subpost of Ft. Constitution, N. H.). (Eastern Dept.) Kittery, Me.
Frankford Arsenal, Pa. Bridesburg, Philadelphia, Pa.
Gaines, Ft., Ala. (subpost of Ft. Morgan). (Eastern Dept.) Dauphin Island, Ala.
Galveston, Tex.
George Wright, Ft., Wash. (Western Dept.) Spokane, Wash.
Getty, Ft., R. I. (subpost of Ft. Greble). (Eastern Dept.) Ft. Greble, R. I.
Gibbon, Ft., Alaska. (Western Dept.) Tanana, Alaska.
Grant, Canal Zone. (Eastern Dept.)
Greble, Ft., R. I. (Eastern Dept.) Newport, R. I.
Hamilton, Ft., N. Y. (Eastern Dept.) Ft. Hamilton, Brooklyn, N. Y.
Hancock, Ft., N. J. (Eastern Dept.) Sandy Hook, N. J.
Heath, Ft., Mass. (subpost of Ft. Banks). (Eastern Dept.) Winthrop Branch, Boston, Mass.
Henry Barracks, Porto Rico. (Eastern Dept.) Cayey, P. R.
H. G. Wright, Ft., N. Y. (Eastern Dept.) New London, Conn.
Honolulu, H. T. (Hawaiian Dept.) Honolulu, H. T.
Howard, Ft., Md. (Eastern Dept.) Baltimore, Md.
Huachuca, Ft., Ariz. (Southern Dept.) Huachuca, Ariz.
Hunt, Ft., Va. (Eastern Dept.) Hunter, Va.
Jackson Barracks, La. (Eastern Dept.) New Orleans, La.
Jay, Ft., N. Y. (Eastern Dept.) New York, N. Y.
Jefferson Barracks, Mo. St. Louis, Mo.
Kamehameha, Ft., H. T. (Hawaiian Dept.) Honolulu, H. T.
Key West Barracks, Fla. (Eastern Dept.) Key West, Fla.
Laredo, Tex. (Southern Dept.)
Lawton, Ft., Wash. (Western Dept.) Seattle, Wash.
Leavenworth, Ft., Kansas. (Central Dept.) Ft. Leavenworth, Kans.
Leavenworth, Ft., Army Service Schools, Kans. Ft. Leavenworth, Kans.
Levett, Ft., Me. (subpost of Ft. Williams). (Eastern Dept.) Portland, Me.
Lincoln, Ft., N. Dak. (Central Dept.) Bismarck, N. D.
Liscum, Ft., Alaska. (Western Dept.) Liscum, Alaska.
Logan, Ft., Colo. Logan, Colo. (Denver, Colo.)
Logan H. Roots, Ft., Ark. (Eastern Dept.) Argenta, Ark. (Little Rock.)
Lyon, Ft., Me. (subpost of Ft. McKinley. (Eastern Dept.) Portland, Me.
McDowell, Ft., Cal. Angel Island, Cal.
McIntosh, Ft., Tex. (Southern Dept.) Laredo, Tex.
Mackenzie, Ft., Wyo. (Central Dept.) Sheridan, Wyo.
McKinley, Ft., Me. (Eastern Dept.) Portland, Me.
McPherson, Ft., Ga. (Eastern Dept.) Atlanta, Ga.
McRee, Ft., Fla. (subpost of Ft. Barrancas). (Eastern Dept.) Ft. Barrancas, Fla.
Madison Barracks, N. Y. (Eastern Dept.) Sacketts Harbor, N. Y.
Mansfield, Ft., R. I. (subpost of Ft. H. G. Wright). (Eastern Dept.) Watch Hill, R. I.
Mason, Ft., Cal. (Western Dept.) San Francisco, Cal.
Meade, Ft., S. Dak. (Central Dept.) Meade, S. Dak.
Michie, Ft., N. Y. (subpost of Ft. Terry, N. Y.). (Eastern Dept.) New London, Conn.
Miley, Ft., Cal. (Western Dept.) (Subpost of Ft. Winfield Scott.) San Francisco, Cal.
Missoula, Ft., Mont. (Central Dept.) Missoula, Mont.
Monroe, Ft., Va. (Eastern Dept.)
Morgan, Ft., Ala. (Eastern Dept.) Mobile, Ala.
Mott, Ft., N. J. (Eastern Dept.) Salem, N. J.
Moultrie, Ft., S. C. (Eastern Dept.) Moultrieville, S. C.
Myer, Ft., Va. (Eastern Dept.) (Washington, D. C.)
Niagara, Ft., N. Y. (Eastern Dept.) Youngstown, N. Y.
Oglethorpe, Ft., Ga. (Eastern Dept.) Dodge, Ga.

Omaha, Ft., Nebr. (Central Dept.) Omaha, Nebr.
Ontario, Ft., N. Y. (Eastern Dept.) Oswego, N. Y.
Otis, Camp, Canal Zone. (Eastern Dept.)
Philip Kearny, Ft., R. I. (subpost of Ft. Greble.) (Eastern Dept.) Ft. Greble, R. I.
Philippine Islands, Manila, P. I.
Pickens, Ft., Fla. (subpost of Ft. Barrancas). (Eastern Dept.) Ft. Barrancas, Fla.
Plattsburg Barracks, N. Y. (Eastern Dept.) Plattsburg, N. Y.
Porter, Ft., N. Y. (Eastern Dept.) Buffalo, N. Y.
Preble, Ft., Me. (subpost of Ft. Williams). (Eastern Dept.) Portland, Me.
Presidio of Monterey, Cal. (Western Dept.) Monterey, Cal.
Presidio of San Francisco, Cal. (Western Dept.) Presidio Stn., San Francisco, Cal.
Presidio of San Francisco, Letterman General Hospital, Cal.
Revere, Ft., Mass. (subpost of Ft. Andrews, Mass.). (Eastern Dept.) Hull, Mass.
Riley, Ft., Kans. (Central Dept.) Junction City, Kans.
Robinson, Ft., Nebr. (Central Dept.)
Rock Island Arsenal, Ill., Rock Island, Ill.
Rodman, Ft., Mass. (Eastern Dept.) New Bedford, Mass.
Rosecrans, Ft., Cal. (Western Dept.) San Diego, Cal.
Ruger, Ft., H. T. (Hawaiian Dept.) Honolulu, H. T.
St. Michael, Ft., Alaska. (Western Dept.)
St. Philip, Ft., La. (subpost of Jackson Bks., La.) (Eastern Dept.)
Sam Houston, Ft., Tex. (Southern Dept.)
Sandy Hook Proving Ground, N. J., Ft. Hancock, N. J.
San Jacinto, Tex. (subpost of Ft. Crockett). (Eastern Dept.) Galveston, Texas.
San Juan, Porto Rico. (Eastern Dept.) San Juan, P. R.
Schofield Barracks, H. T. (Hawaiian Dept.) Honolulu, H. T.
Schuyler, Ft., N. Y. (subpost of Ft. Totten, N. Y.). (Eastern Dept.) Westchester Stn., New York City.
Screven, Ft., Ga. (Eastern Dept.)
Shafter, Ft., H. T. (Hawaiian Dept.) Honolulu, H. T.
Sheridan, Ft., Ill. (Central Dept.) (Near Chicago, Ill.)
Sill, Ft., Okla. (Southern Dept.) Lawton, Okla.
Slocum, Ft., N. Y. New Rochelle, N. Y.
Smallwood, Ft., Md. (subpost of Ft. Howard). (Eastern Dept.) Baltimore, Md.
Snelling, Ft., Minn. (Central Dept.) (Near St. Paul, Minn.)
Springfield Armory, Mass. Springfield, Mass.
Standish, Ft., Mass. (subpost of Ft. Strong). (Eastern Dept.) Boston, Mass.
Stark, Ft., N. H. (subpost of Ft. Constitution). (Eastern Dept.) Portsmouth, N. H.
Stevens, Ft., Oreg. (Western Dept.)
Strong, Ft., Mass. (Eastern Dept.) Boston, Mass.
Sumter, Ft., S. C. (subpost of Fort Moultrie). (Eastern Dept.) Moultrieville, S. C.
Terry, Ft., N. Y. (Eastern Dept.) New London, Conn.
Texas City, Tex. (Temporary.)
Thomas, Ft., Ky. (Eastern Dept.) Ft. Thomas Station, Newport, Ky.
Totten, Ft., N. Y. (Eastern Dept.) Whitestone, N. Y.
Travis, Ft., Tex. (subpost of Ft. Crockett). (Eastern Dept.) Galveston, Tex.
U. S. Military Prison, Ft. Leavenworth, Kans. Ft. Leavenworth, Kans.
U. S. Military Prison, Alcatraz, Cal. (Pacific Branch). Alcatraz, Cal.
Vancouver Barracks, Wash. (Western Dept.) Vancouver, Wash.
Wadsworth, Ft., N. Y. (Eastern Dept.) Rosebank, N. Y.
Walter Reed General Hospital, D. C., Takoma Park, D. C.
Ward, Ft., Wash. (Western Dept.) Ft. Ward, Wash. (near Seattle).
Warren Ft., Mass. (Eastern Dept.) Ft. Warren, Mass. (Boston Harbor.)
Washington Barracks, D. C. (Eastern Dept.) Washington, D. C.

Washington, Ft., Md. (Eastern Dept.) Ft. Washington, Md.
Watertown Arsenal, Mass., Watertown, Mass.
Watervliet Arsenal, N. Y. Watervliet, N. Y.
Wayne, Ft., Mich. (Central Dept.) Detroit, Mich.
West Point, N. Y. (U. S. Mil. Acad.) West Point, N. Y.
Wetherill, Ft., R. I. (subpost of Ft. Adams). (Eastern Dept.) Jamestown, R. I.
Whipple Barracks, Ariz. (Southern Dept.) Whipple Barracks, Ariz.
Whitman, Ft., Wash. (subpost of Ft. Worden). (Western Dept.) La Conner, Wash.
Wm. H. Seward, Ft., Alaska. (Western Dept.) Haines, Alaska.
Williams, Ft., Me. (Eastern Dept.) Cape Cottage, Me.
Winfield Scott, Ft., Cal. (Western Dept.)
Wood, Ft., N. Y. (Eastern Dept.) New York, N. Y.
Worden, Ft., Wash. (Western Dept.) Port Townsend, Wash.
Yellowstone, Ft., Wyo. (Western Dept.) Yellowstone Park, Wyo.
Yosemite National Park, Cal. (Western Dept.)

Note.—Garrison schools for the instruction of officers and post schools for enlisted men are maintained at practically all of these posts, the only exceptions being forts where but few officers and soldiers are stationed. A glance at this list will serve to impress one with the extent of these schools both from their number and their geographical distribution.

APPENDIX IV.

THE AUTHORIZED STRENGTH OF THE ARMY.

It is essential, to form a definite idea of the sufficiency of any educational system, to have a knowledge of the number of people affected by such system. With this in view the information in this Appendix is given. The following tabulated statement of the authorized strength of the standing Army of the United States is taken from the February 1914, Army List and Directory. It should be borne in mind that the figures as to the strength of the various arms of the service and corps are something of a variable quantity. The number of commissioned officers of each grade, or rank, and the maximum enlisted numbers are fixed by Congress. There are few changes in the former but the latter may vary several thousand from month to month, the maximum being 100,000.

AUTHORIZED STRENGTH OF THE ARMY.

	Major generals.	Brigadier generals.	Colonels.	Lieutenant colonels.	Majors.	Captains.	First lieutenants.	Second lieutenants.	Chaplains.	Total commissioned officers.	Enlisted men.
General officers	6	15	....	....	....	....	....	....	....	21	....
Adjutant General's Department	..	1	5	7	10	....	....	....	....	23	....
Inspector General's Department	....	1	3	4	9	....	....	....	....	17	....
Judge Advocate General's Department	....	1	2	3	7	....	....	....	....	13	....
Quartermaster Corps	1	2	12	18	48	102	....	....	....	183	a403
Medical Department	....	1	14	24	105	169	b280	....	....	b593	(c)
Corps of Engineers	....	1	14	21	47	57	53	43	1	237	1,942
Ordnance Department	....	1	6	9	19	25	25	....	....	85	735
Signal Corps	....	1	1	2	6	18	18	....	....	46	1,212
Bureau of Insular Affairs	....	1	1	..	1	....	....	....	....	3	....
Fifteen regiments of Cavalry	....	....	15	15	45	225	225	225	15	765	14,184
Six regiments of Field Artillery	....	....	6	6	12	66	78	78	6	252	5,513
Coast Artillery Corps	....	1	14	14	42	210	210	210	14	715	18,973
Thirty regiments of Infantry	....	....	30	30	90	450	450	450	30	1,530	33,947
Porto Rico Regiment of Infantry	....	....	....	....	....	11	10	10	1	32	591
Military Academy	....	....	2	5	....	....	....	....	....	7	631
Detached officers	....	....	8	9	27	77	79	....	....	200	....
Additional officers	....	....	24	6	....	....	....	....	....	31	....
Recruiting parties, recruit depots, and unassigned recruits	....	....	....	....	....	....	....	....	....	....	6,498
Service school detachments	....	....	....	....	....	....	....	....	....	....	587
United States Military Prison guards	....	....	....	....	....	....	....	....	....	....	340
With disciplinary organizations	....	....	....	....	....	....	....	....	....	....	63
Indian scouts	....	....	....	....	....	....	....	....	....	....	75
Total Regular Army	7	26	157	173	468	1,410	1,428	1,016	67	4,753	85,694
Additional force:											
Philippine Scouts	....	....	....	....	....	52	64	64	....	180	5,732
Grand total	7	26	157	173	468	1,462	1,492	1,089	67	4,933	91,426

a Under the act of Congress approved Aug. 24, 1912, the 6,000 authorized enlisted men of the Quartermaster Corps are not to be counted as part of the strength of the Army.

b Includes 89 first lieutenants of the Medical Reserve Corps on active duty and 60 dental surgeons.

c Under the act of Congress approved March 1, 1887 (24 Stat. L., 435), the enlisted men of the Medical Department (Hospital Corps) are not to be counted as part of the strength of the Army. The authorized strength of the Hospital Corps is 3,500 enlisted men.

APPENDIX V.

OFFICERS OF THE ARMY DETAILED AS PROFESSORS OF MILITARY SCIENCE AND TACTICS AT EDUCATIONAL INSTITUTIONS.

Officers of the Army are detailed for duty with civil institutions of learning under provisions of Section 1225, Revised Statutes, as amended by the Acts of Congress Approved September 26th, 1888; January 13th, 1891; and November 3, 1893.

State.	Name of institution.	Class.	Name and rank of detailed officer.	Reported for duty.
Arizona	University of Arizona, Tucson	B	Col. George LeR. Brown, ret	Aug. 26, 1913
Arkansas	Quachita College, Arkadelphia	C	Capt. S. Y. Britt, ret	Oct. 6, 1911
	University of Arkansas, Fayetteville	B	1st Lieut. N. J. Wiley, 5th inf	June 23, 1912
California	†University of California, Berkeley (1913)	B	Maj. J. T. Nance, ret	Sept. 3, 1912
	The Harvard School, Los Angeles	A	Capt. Alpha T. Easton, ret	Mar. 19, 1912
Colorado	State Agricultural College of Colorado, Ft. Collins	B	Maj. Geo. L. Scott, ret	Aug. 11, 1911
Connecticut	Connecticut Agricultural College, Storrs	B	1st Lieut. W. Goodwin, jr., 5th inf	Jan. 2, 1913
Delaware	Delaware College, Newark	B	1st Lieut. C. C. Herman, jr., inf	Feb. 9, 1913
Florida	University of Florida, Gainesville	B	Maj. E. S. Walker, ret	Sept. 1, 1908
Georgia	Georgia Military College, Milledgeville	A	1st Lieut. F. E. Wilson, 6th inf	Sept. 18, 1912
	Marist College, Atlanta	C	Capt. E. T. Winston, ret	Feb. 11, 1913
	North Georgia Agricultural College, Dahlonega	BA	1st Lieut. S. A. Harris, 14th inf	Aug. 28, 1912
	Gordon Institute, Barnesville	A	1st Lieut. N. W. Riley, inf	Jan. 5, 1913
	University of Georgia, Athens	B	1st Lieut. W. R. Kendrick, 17th inf	Dec. 18, 1912
	†Georgia Military Academy, College Park (1913)	A	1st Lieut. Jas. P. Castleman, 11th cav.	Aug. 14, 1912
	Riverside Military Academy, Gainesville, Ga		1st Lieut. Harry Hawley, 9th inf	Nov. 25, 1913
Hawaii Territory	The Kamehameha Schools, Honolulu	A	1st Lieut. Geo. E. Turner, coast art	July 14, 1911
Idaho	University of Idaho, Moscow	B	2d Lieut. Herbert C. Fooks, 16th inf	Sept. 27, 1913
Illinois	†University of Illinois, Urbana (1913)	B	Maj. Frank D. Webster, inf	Oct. 7, 1913
	†Western Military Academy, Alton (1913)	A	1st Lieut. Paul A. Barry, ret	June 1, 1911
Indiana	Concordia College, Fort Wayne	A	Capt. George L. Byroade, ret	Feb. 3, 1914
	University of Notre Dame, Notre Dame	C	Capt. R. R. Stogsdall, ret	July 8, 1910
	Purdue University, Lafayette	B	1st Lieut. R. G. Kirkwood, 3d field art.	Sept. 25, 1913
	*Culver Military Academy, Culver (1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913)	A	Capt. J. Q. Adams, ret	June 20, 1907
Iowa	State University of Iowa, Iowa City	C	1st Lieut. Robert T. Phinney, 21st inf.	Oct. 15, 1913
Kansas	Kansas State Agricultural College, Manhattan	B	2d Lieut. R. A. Hill, 7th inf	Feb. 15, 1913
Kentucky	State University, Lexington	B	1st Lieut. A. W. Gullion, 20th inf	Dec. 20, 1912
	†Kentucky Military Institute, Lyndon (1913)	A	1st Lieut. P. H. Bagby, inf	Dec. 14, 1912
Louisiana	Louisiana State University and Agricultural and Mechanical College, Baton Rouge	B	1st Lieut. G. F. Rozelle, jr., 22d inf	Feb. 22, 1913
Maine	University of Maine, Orono	B	1st Lieut. R. R. Glass, 21st inf	Aug. 29, 1912
Maryland	†*St. John's College, Annapolis (1905, 1909, 1910) (†1913)	A	2d Lieut. C. St. C. McNeil, 15th cav.	Oct. 15, 1913
	*Maryland Agricultural College, College Park (1910,1911)	BA	Maj. J. A. Dapray, ret	Jan. 1, 1913
Massachusetts	Massachusetts Agricultural College, Amherst	B	Capt. Geo. C. Martin, ret	Sept. 2, 1905
	Massachusetts Institute of Technology, Boston	B	Maj. E. T. Cole, ret	Aug. 8, 1911
Michigan	Michigan Agricultural College, Lansing	B	1st Lieut. John B. De Lancey, 7th inf.	June 30, 1913
Minnesota	†*College of St. Thomas, St. Paul (1908, 1909) (†1913)	A	1st Lieut. A. S. Perkins, cav	Feb. 22, 1913
	*Shattuck School, Faribault (1904, 1906, 1907, 1908, 1909, 1912, 1913)	A	1st Lieut. G. Grunert, cav	Nov. 8, 1913
	University of Minnesota, Minneapolis	B	1st Lieut. J. B. Woolnough, 21st inf	Aug. 15, 1912
Mississippi	Mississippi Agricultural and Mechanical College, Agricultural College	BA	1st Lieut. Sheldon W. Anding, inf	Sept. 24, 1912
Missouri	†Wentworth Military Academy, Lexington (1913)	A	1st Lieut. Truman D. Thorpe, ret	Sept. 19, 1913
	†Kemper Military School, Boonville (1913)	A	1st Lieut. Frederick B. Terrell, inf	Sept. 15, 1913
	University of Missouri, Columbia	B	1st Lieut. C. McH. Eby, 12th cav	Jan. 8, 1913
Nebraska	University of Nebraska, Lincoln	B	1st Lieut. E. N. Bowman, 4th inf	Aug. 25, 1912
Nevada	University of Nevada, Reno	B	Capt. H. La F. Applewhite, ret	June 1, 1912
New Hampshire	New Hampshire College of Agriculture and the Mechanic Arts, Durham	B	1st Lieut. C. A. Hunt, inf	Sept. 10, 1912

State.	Name of institution.	Class.	Name and rank of detailed officer.	Reported for duty.
New Jersey	Rutgers Scientific School, New Brunswick	B	1st Lieut. A. E. Brown, 16th inf	Aug. 8, 1913
New Mexico	New Mexico College of Agriculture and Mechanic Arts, State College	B		
	*New Mexico Military Institute, Roswell (1909-1910, 1911, 1912, 1913)	A	Capt. W. S. Barlow, ret	Aug. 28, 1906
New York	College of St. Francis Xavier, New York City	C	1st Lieut. D. Donald, ret	Sept. 1, 1910
	*St. John's School, Manlius (1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913)	A	1st Lieut. W. R. Pope, cav	Jan. 1, 1913
	†Cornell University, Ithaca (1913)	B	1st Lieut. H. T. Bull, cav	Dec. 28, 1912
	New York Military Academy, Cornwall on Hudson	A	Maj. M. F. Davis, ret	June 25, 1909
North Carolina	Bingham School, Asheville	A	1st Lieut. C. R. Abraham, 27th inf	July 1, 1912
	North Carolina College of Agriculture and Mechanic Arts, West Raleigh	B	1st Lieut. H. F. Spurgin, C. A. C	July 22, 1913
North Dakota	North Dakota Agricultural College, Fargo	B	1st Lieut. S. P. Herren, ret	Sept. 14, 1911
Ohio	†Ohio State University, Columbus (1913)	B	Capt. G. L. Converse, ret	Aug. 23, 1900
	Ohio Northern University, Ada	C	Capt. W. S. Neely, inf	Aug. 23, 1911
	Wilberforce University, Wilberforce	C		
Oklahoma	Oklahoma Agricultural College, Stillwater	B	1st Lieut. G. W. Ewell, 3d inf	Dec. 15, 1912
Oregon	†Oregon Agricultural College, Corvallis (1913)	B	1st Lieut. P. J. Hennessey, cav	Jan. 5, 1913
Pennsylvania	*Pennsylvania Military College, Chester (1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913)	A	1st Lieut. C. H. Müller, cav	Dec. 21, 1912
	Pennsylvania State College, State College	B	1st Lieut. Andrew D. Chaffin, 29th inf.	Apr. 4, 1914
Porto Rico	University of Porto Rico, San Juan	C	1st Lieut. Bates Tucker, ret	Nov. 14, 1911
Rhode Island	Rhode Island State College, Kingston	B	Capt. W. E. Dove, ret	Jan. 2, 1912
South Carolina	Clemson Agricultural College, Clemson College	BA	1st Lieut. J. M. Cummins, 18th inf	May 23, 1912
	Bailey Military Institute, Greenwood		2d Lieut. G. C. Bowen, 20th inf	Feb. 23, 1914
	*The Citadel, Charleston (1904, 1905, 1908, 1909, 1910, 1911, 1912, 1913)	A	1st Lieut. Jesse Gaston, inf	June 15, 1912
South Dakota	South Dakota State College of Agriculture and Mechanic Arts, Brookings	B	1st Lieut. Oscar Foley, cav	Jan. 6, 1913
Tennessee	Columbia Military Academy, Columbia	A	1st Lieut. W. H. Westmoreland, 11th cav.	Sept. 11, 1911
	Sewanee Military Academy, Sewanee	A	Maj. E. S. Benton, ret	Apr. 6, 1911
	†Tennessee Military Institute, Sweetwater (1913)	A	2d Lieut. James A. Merritt, 14th inf	Sept. 30, 1913
	University of Tennessee, Knoxville	B	2d Lieut. Allen M. Burdett, 17th inf	Sept. 30, 1913
Texas	The Peacock Military College, San Antonio	A		
	West Texas Military Academy, San Antonio	A	1st Lieut. Dean Halford, inf	Nov. 25, 1912
	*Agricultural and Mechanical College of Texas, College Station (1910, 1911, 1912, 1913)	BA	1st Lieut. L. G. Brown, cav	June 14, 1912
Utah	Agricultural College of Utah, Logan	B	1st Lieut. Robert J. Binford, inf	Mar. 21. 1912
Vermont	*Norwich University, Northfield (1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913)	A	1st Lieut. Ralph M. Parker, cav	June 13, 1913
	University of Vermont and State Agricultural College, Burlington	B	Capt. Ira L. Reeves, ret	Sept. 26, 1912
Virginia	Fork Union Military Academy, Fork Union	C	Capt. John A. Lockwood, ret	Sept. 23, 1913
	*Virginia Military Institute, Lexington (1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913)	A	1st Lieut. Russell James, 3d inf	Aug. 24, 1913
	Virginia Polytechnic Institute, Blacksburg	BA	1st Lieut. J. F. Ware, inf	July 15, 1911
	Staunton Military Academy, Staunton	A	Capt. Lewis D. Greene, ret	Oct. 20, 1913

State.	Name of institution.	Class.	Name and rank of detailed officer.	Reported for duty.
Washington	State College of Washington, Pullman	B	1st Lieut. C. R. Bennett, inf.	Sept. 26, 1911
	University of Washington, Seattle	C	1st Lieut. E. E. McCammon, 3d inf.	Jan. 27, 1913
West Virginia	West Virginia University, Morgantown	B	1st Lieut. Deas Archer, 26th inf.	Dec. 18, 1912
Wisconsin	Northwestern Military and Naval Academy, Lake Geneva.	A	2d Lieut. F. L. Beals, ret.	Jan. 8, 1911
	University of Wisconsin, Madison	B	1st Lieut. P. G. Wrightson, inf.	Jan. 22, 1913
	*St. John's Military Academy, Delafield (1911, 1912, 1913)	A	1st Lieut. E. Gunner, inf.	Aug. 15, 1912
Wyoming	University of Wyoming, Laramie	B		

OFFICERS DETAILED UNDER SECTION 1260, R. S., AND THE ACTS OF CONGRESS APPROVED MAY 4, 1880; AUGUST 6, 1894; FEBRUARY 26, 1901; AND APRIL 21, 1904.

State.	Name of institution.	Class.	Name and rank of detailed officer.	Reported for duty.
California	Hitchcock Military Academy, San Rafael	A	1st Lieut. W. E. Mould, ret.	Aug. 21, 1913
	Mt. Tamalpais Military Academy, San Rafael	A	Capt. S. P. Vestal, ret.	Aug. 20, 1913
	St. Matthew's Military School, Burlingame	A	Capt. Herbert N. Royden, ret.	Jan. 4, 1911
Missouri	Missouri Military Academy, Mexico	A	Capt. B. H. Dorcy, ret.	Oct. 1, 1913
New Jersey	Wenonah Military Academy, Wenonah	C	Capt. W. W. Hamilton, ret.	Mch. 23, 1914
Ohio	Miami Military Institute	A		

NOTE.—Under the provisions of General Orders, No. 231, War Department, November 16, 1909, these institutions are divided into five classes, as follows:

(This order has been succeeded by General Orders No. 70, War Department, November 18, 1913. The new classification of these institutions under this order will take place in 1914. See Classification, Chapter III.)

CLASS A.—Schools or colleges whose organization is essentially military, whose students are habitually in uniform, in which military discipline is constantly maintained, and one of whose leading objects is the development of the student by means of military drill, and by regulating his daily conduct according to the principles of military discipline.

CLASS. B.—State land grant or agricultural colleges established under the provisions of the act of Congress of July 2, 1862, and which are required by said act to include military tactics in their curriculum.

CLASS B A.—Any college of Class B which attains the state of efficiency required for schools or colleges of Class A shall be classed as B A.

CLASS C.—All schools or colleges not essentially military which maintain a course of military instruction equal or superior in character and hours of instruction to that required of institutions of Class B.

CLASS D.—All other schools or colleges at which officers of the Army may be detailed and which do not maintain a course of military instruction equal to that required of institutions of Class B, and at which such instruction is regarded as nominal.

Institutions, not exceeding 10, whose students have exhibited the greatest application and proficiency in military training and knowledge during the year are designated annually as "distinguished institutions." An asterisk against the name of an institution indicates that it is one of those that have been so designated, the year or years in which it was designated being placed after the name of the institution. A dagger against the name of an institution indicates that it has been especially commended for the work of its military department during the year indicated in parenthesis after the name of the institution.

OFFICERS DETAILED AS INSPECTOR-INSTRUCTORS WITH THE INFANTRY OF THE ORGANIZED MILITIA UNDER THE ACT OF CONGRESS APPROVED MARCH 3, 1911,

AND

RETIRED OFFICERS DETAILED WITH THE ORGANIZED MILITIA, UNDER THE PROVISIONS OF THE ACT APPROVED APRIL 23, 1904.

State.	Station.	Name and rank of detailed officer.	Reported for duty.
Alabama	Montgomery	Capt. William P. Screws, inf.	Aug. 30, 1913
Arizona	Phoenix		
Arkansas	Little Rock	Capt. Albert B. Sloan, inf.	Jan. 29, 1913
California	Sacramento	Capt. Wilson B. Burtt, 20th inf.	Mar. 28, 1914
Colorado	Denver	Col. Alfred C. Sharpe, inf.	June 1, 1911
		Maj. William P. Stone, ret	Sept. 11, 1909
Connecticut	Hartford	Col. Calvin D. Cowles, ret	July 24, 1913
		Maj. Edward A. Shuttleworth, inf.	Oct. 14, 1913
Delaware	Wilmington	1st Lieut. Elvid Hunt, inf.	Aug. 23, 1911
	New Castle	Lieut. Col. H. G. Cavenaugh, ret	Dec. 7, 1904
District of Columbia	Washington	1st Lieut. Geo. A. Lynch, inf.	Dec. 13, 1912
Florida	St. Augustine	Capt. La Vergne L. Gregg, inf.	Dec. 9, 1912
Georgia	Griffin	Capt. James M. Kimbrough, jr., inf.	July 23, 1912
	Atlanta	Maj. Frederick L. Palmer, ret.	Apr. 2, 1908
	Albany	Capt. Robert E. L. Spence, ret	Aug. 23, 1912
Hawaii	Honolulu	1st Lieut. Arthur L. Bump, 25th inf	Oct. 14, 1913
Idaho	Boise	Capt. Edwin G. Davis, ret.	Mar. 3, 1911
		1st Lieut. Augustus F. Dannemiller, inf	Dec. 11, 1912
Illinois	Springfield	Lieut. Col. Charles H. Muir, inf.	June 10, 1911
	Chicago	Capt. James Ronayne, ret.	Mar. 28, 1910
Indiana	Indianapolis	Capt. Robert E. Grinstead, inf.	Aug. 1, 1912
		1st Lieut. Burt W. Phillips, 14th inf.	Mar. 2, 1914
		1st Lieut. Philip Remington, 12th inf	Apr. 5, 1914
Iowa	Des Moines	Capt. George E. Ball, inf.	Dec. 22, 1912
Kansas	Topeka	Lieut. Col. Waldo E. Ayer, inf	June 18, 1911
		Maj. Alvarado M. Fuller, ret.	Feb. 19, 1907
Kentucky	Lexington	Capt. Ethelbert L. D. Breckinridge, inf	Dec. 12, 1912
Louisiana	Baton Rouge	1st Lieut. Manfred Lanza, inf.	Dec. 8, 1912
Maine	Augusta	1st Lieut. Edwin Butcher, inf.	Aug. 5, 1911
Maryland	Baltimore	Capt. G. Arthur Hadsell, 3d inf.	
Massachusetts	Boston	Maj. John W. Heavey, inf.	July 16, 1913
		1st Lieut. John R. McGinness, inf	Dec. 12, 1912
Michigan	Lansing	Capt. Robert O. Ragsdale, inf.	Apr. 18, 1913
Minnesota	St. Paul	Lieut. Col. William Gerlach, ret.	Dec. 23, 1903
Mississippi	Jackson	1st Lieut. Benjamin F. McClellan, inf	Oct. 20, 1912
Missouri	California	Capt. Charles M. Gordon, jr., 6th inf	July 5, 1913
	Kansas City	1st Lieut. Oscar W. Hoop, 12th inf	
	Columbia		
Montana	Helena	1st Lieut. Augustine A. Hofmann, inf.	Dec. 5, 1912

State.	Station.	Name and rank of detailed officer.	Reported for duty.
Nebraska	Lincoln	Capt. Robert L. Hamilton, ret.	Apr. 6, 1910
		1st Lieut. William C. Stoli, inf.	Dec. 16, 1912
New Hampshire	Concord		
New Jersey	Jersey City	1st Lieut. James G. Boswell. inf.	Sept. 1, 1913
	Trenton	Maj. Edward R. Chrisman, inf.	Dec. 13, 1912
New Mexico	Santa Fe	1st Lieut. Frederic C. Test, inf.	Jan. 2, 1914
New York	New York City	Lieut. Col. Wm. H. Sage, inf.	Feb. 5, 1913
		Maj. William Weigel, 23d inf.	Feb. 14, 1914
		Capt. George H. White, inf.	Apr. 17, 1913
		Capt. Romulus F. Walton, ret.	Sept. 16, 1908
		1st Lieut. Carroll B. Hodges, 29th inf.	Mar. 13, 1914
		1st Lieut. Thomas L. Crystal, 5th inf.	
North Carolina	Raleigh	Capt. Russell C. Langdon, inf.	Dec. 6, 1912
	Tryon	Capt. Bernard Sharp	Apr. 5, 1914
North Dakota	Bismarck	Maj. Richard R. Steedman, ret.	Feb. 26, 1910
		1st Lieut. Fred H. Turner, inf.	Dec. 28, 1912
Ohio	Columbus	Maj. George C. Saffarrans, inf.	June 28, 1913
Oklahoma	Oklahoma City	1st Lieut. Charles A. Thuis, inf.	Jan. 22, 1912
Oregon	Portland	Col. James Jackson, ret.	May 16, 1904
		Maj. Charles H. Martin, inf.	July 5, 1913
		Capt. Clenard McLaughlin, 21st inf.	Nov. 24, 1913
Pennsylvania	Harrisburg		
	Wayne		
Rhode Island	Providence	Maj. Chas. W. Abbot, jr., ret.	Oct. 28, 1904
South Carolina	Columbia	1st Lieut. Chas H. Cabaniss, jr., ret.	Feb. 13, 1907
South Dakota	Redfield	1st Lieut. Calvin P. Titus, inf.	Sept. 9, 1912
Tennessee	Nashville	Capt. Charles B. Rogan, ret.	Feb. 9, 1904
		1st Lieut. Fay W. Brabson, inf.	June 1, 1911
Texas	Austin	Capt. Collin H. Ball, 26th inf.	Apr. 1, 1914
Utah	Salt Lake City	1st Lieut. William B. Wallace, 20th inf.	Feb. 3, 1914
Vermont	Rutland	Capt. Leonard J. Mygatt, inf.	Jan. 6, 1913
Virginia	Richmond	Col. Charles A. Dempsey, ret.	Oct. 13, 1904
		Capt. Arthur M. Shipp, inf.	Nov. 16, 1913
Washington	Seattle	Capt. Harol D. Coburn, inf.	Nov. 28, 1913
West Virginia	Charleston	Maj. Isaac C. Jenks, inf.	Sept. 26, 1911
Wisconsin	Madison	Capt. Robert H. Wescott, inf.	Dec. 4, 1912
	Milwaukee	Capt. Charles King, ret.	Sept. 13, 1904
Wyoming	Cheyenne	Capt. Verling K. Hart, ret.	Oct. 1, 1910

OFFICERS DETAILED AS INSPECTOR-INSTRUCTORS WITH THE ENGINEERS, CAVALRY, FIELD ARTILLERY, AND COAST ARTILLERY OF THE ORGANIZED MILITIA UNDER THE ACT OF CONGRESS APPROVED MARCH 3, 1911.

CORPS OF ENGINEERS.

District.	Headquarters.	Name and rank of detailed officer.	Reported for duty.
New York Pennsylvania Ohio	New York City	Capt. W. D. A. Anderson, corps of engrs	Aug. 24, 1912

CAVALRY

Massachusetts Rhode Island Connecticut New Hampshire	Hartford, Conn.	Maj. Francis C. Marshall, cav	Aug. 25, 1911
New York	New York, N. Y.	Capt. Lincoln C. Andrews, cav	Aug. 15, 1911
Vermont		Capt. David H. Biddle, cav	Dec. 10, 1912
Pennsylvania Maryland New Jersey	Philadelphia, Pa.	1st Lieut. William H. Bell, cav	Apr. 8, 1912
Georgia Mississippi Tennessee North Carolina	Richmond, Va.	1st Lieut. E. R. Warner McCabe, cav	July 16, 1911
Ohio Michigan	Cincinnati, Ohio	Capt. John E. Hemphill, cav	Dec. 2, 1912
Illinois Missouri Wisconsin	Chicago, Ill.	Lieut. Col. Godfrey H. McDonald, cav	June 15, 1913
Texas Louisiana	Austin, Tex.	Capt. Bruce Palmer, cav	July 21, 1911
Colorado Arizona	Denver, Colo.	Capt. Julien E. Gaujot, cav	Aug. 9, 1913
California Washington	San Francisco, Cal.	1st Lieut. Albert B. Dockery, cav	Jan. 10, 1912

FIELD ARTILLERY.

District.	Headquarters.	Name and rank of detailed officer.	Reported for duty.
Massachusetts, Connecticut, Rhode Island	New Haven, Conn.	Capt. Robert Davis, 5th field art.	Aug. 1, 1913
New York, New Jersey	New York	Capt. John B. W. Corey, field art.	Dec. 1, 1912
		1st Lieut. Harry Pfeil, 1st field art.	Mar. 22, 1912
District of Columbia, Virginia, Pennsylvania	Washington, D. C.	Capt. Louis T. Boiseau, field art.	Dec. 2, 1912
Georgia, Alabama, Mississippi, Louisiana	Atlanta, Ga.	1st Lieut. Edward P. King, jr., 6th field art.	July 7, 1911
Ohio, Michigan, Indiana	Indianapolis, Ind.	1st Lieut. Albert L. Hall, field art.	Feb. 26, 1913
Minnesota, Wisconsin, Illinois	St. Paul, Minn.	Capt. Charles C. Pulis, field art.	Dec. 13, 1911
Missouri, Kansas, Texas	Kansas City, Mo.	1st Lieut. Frank Thorp, jr., 5th field art.	Sept. 25, 1913
Utah, New Mexico	Salt Lake City, Utah.	1st Lieut. Benjamin M. Bailey, 5th field art.	Apr. 13, 1913
California, Oregon	Oakland, Cal.	Capt. Edgar H. Yule, field art.	Apr. 25, 1913

COAST ARTILLERY.

California	San Francisco	Capt. William P. Platt, coast art.	
Connecticut	Stamford	Capt. Malcolm P. Andruss, coast art.	Dec. 15, 1912
Georgia	Savannah	1st Lieut. Lloyd B. Magruder, coast art.	Aug. 23, 1913
Maine	Portland	Capt. Henry M. Merriam, coast art.	May 19, 1913
New York	New York City	Capt. James B. Mitchell, coast art.	Oct. 1, 1910
do	do	Capt. Harry J. Watson, coast art.	Feb. 12, 1913
North Carolina, South Carolina	Raleigh	Capt. Alexander Greig, jr., coast art.	Apr. 5, 1913
Oregon	Eugene	Capt. Robert W. Collins, coast art.	Feb. 29, 1912
Rhode Island	Providence	Lieut. Col. G. W. Gatchell, coast art.	June 1, 1911
Washington	Seattle	Capt. Arthur P. S. Hyde, c. a. c.	Nov. 19, 1913

DETAILED UNDER THE COMBINED ACTS OF CONGRESS APPROVED, RESPECTIVELY, MARCH 1, 1899, AND FEBRUARY 18, 1900, FOR DUTY AS ADJUTANT GENERAL.

State.	Headquarters.	Name and rank of detailed officer.	Reported for duty.
District of Columbia	Washington	Lieut. Colonel Almon L. Parmerter, inf.	Apr. 1, 1912

APPENDIX VII.

CONGRESSIONAL ENACTMENTS RELATING TO LAND GRANT COLLEGES.

The following Acts of Congress relate to endowments and appropriations affecting land grant institutions of learning:

MORRILL LAND-GRANT ACT OF 1862.

AN ACT Donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts.

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, That there be granted to the several States, for the purposes hereinafter mentioned, an amount of public land, to be apportioned to each State a quantity equal to 30,000 acres for each Senator and Representative in Congress to which the States are respectively entitled by the apportionment under the census of 1860: *Provided,* That no mineral lands shall be selected or purchased under the provisions of this act.

SEC. 2. *And be it further enacted,* That the land aforesaid, after being surveyed, shall be apportioned to the several States in section or subdivisions of sections, not less than one-quarter of a section; and wherever there are public lands in a State, subject to sale at private entry at one dollar and twenty-five cents per acre, the quantity to which said State shall be entitled shall be selected from such lands, within the limits of such State; and the Secretary of the Interior is hereby directed to issue to each of the States, in which there is not the quantity of public lands subject to sale at private entry, at one dollar and twenty-five cents per acre, to which said State may be entitled under the provisions of this act, land scrip to the amount in acres for the deficiency of its distributive share; said scrip to be sold by said States, and the proceeds thereof applied to the uses and purposes prescribed in this act, and for no other use or purpose whatsoever: *Provided,* That in no case shall any State to which land scrip may thus be issued be allowed to locate the same within the limits of any other State, or of any territory of the United States; but their assignees may thus locate said land scrip upon any of the unappropriated lands of the United States subject to sale at private entry, at one dollar and twenty-five cents, or less, an acre: *And provided further,* That not more than one million acres shall be located by such assignees in any one of the States: *And provided further,* That no such location shall be made before one year from the passage of this act.

SEC. 3. *And be it further enacted,* That all the expenses of management, superintendence and taxes from date of selection of said lands, previous to their sales, and all expenses incurred in the management and disbursement of moneys which may be received therefrom, shall be paid by the States to which they may belong, out of the Treasury of said States, so that the entire proceeds of the sale of said lands shall be applied, without any diminution whatever, to the purposes hereinafter mentioned.

SEC. 4. *And be it further enacted,* That all moneys derived from the sale of the lands aforesaid by the States to which the lands are apportioned, and from the sales of land scrip hereinbefore provided for, shall be invested in stocks of the United States, or of the States, or some other safe stocks, yielding not less than five per centum upon the par value of said stocks; and that the moneys so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished, except so far as may be provided in section fifth of this act, and the interest of which shall

be inviolably appropriated, by each State which may take and claim the benefit of this act, to the endowment, support, and maintenance of, at least, one college, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.

SEC. 5. *And be it further enacted*, That the grant of land and land scrip hereby authorized shall be made on the following conditions, to which, as well as to the provisions hereinbefore contained, the previous assent of the several States shall be signified by legislative acts:

First. If any portion of the fund invested, as provided by the foregoing section, or any portion of the interest thereon, shall, by any action or contingency, be diminished or lost, it shall be replaced by the State to which it belongs, so that the capital of the fund shall remain forever undiminished; and the annual interest shall be regularly applied without diminution to the purposes mentioned in the fourth section of this act, except that a sum, not exceeding ten per centum upon the amount received by any State under the provisions of this act, may be expended for the purchase of lands for sites or experimental farms, whenever authorized by the respective Legislatures of said States:

Second. No portion of said fund, nor the interest thereon, shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation, or repair of any building or buildings;

Third. Any State which may take and claim the benefit of the provisions of this act shall provide, within five years, at least not less than one college, as prescribed in the fourth section of this act, or the grant to such State shall cease; and said State shall be bound to pay the United States the amount received of any lands previously sold, and that the title to purchasers under the State shall be valid;

Fourth. An annual report shall be made regarding the progress of each college, recording any improvements and experiments made, with their costs and results, and such other matters, including State industrial and economical statistics, as may be supposed useful; one copy of which shall be transmitted by mail free, by each, to all the other colleges which may be endowed under the provisions of this act, and also one copy to the Secretary of the Interior;

Fifth. When lands shall be selected from those which have been raised to double the minimum price in consequence of railroad grants, they shall be computed to the States at the maximum price, and the number of acres proportionally diminished;

Sixth. No State, while in a condition of rebellion or insurrection against the government of the United States, shall be entitled to the benefit of this act;

Seventh. No State shall be entitled to the benefits of this act unless it shall express its acceptance thereof by its Legislature within two years from the date of its approval by the President.

SEC. 6. *And be it further enacted*, That land scrip issued under the provisions of this act shall not be subject to location until after the first day of January, 1863.

SEC. 7. *And be it further enacted*, That land officers shall receive the same fees for locating land scrip issued under the provisions of this act as is now allowed for the location of military bounty land warrants under existing laws: *Provided*, That maximum compensation shall not be thereby increased.

SEC. 8. *And be it further enacted*, That the Governors of the several States to which scrip shall be issued under this act shall be required to report annually to Congress all sales made of such scrip until the whole shall be disposed of, the amount received for the same, and what appropriation has been made of the proceeds.

Approved, July 2, 1862.

ACT OF 1883, AMENDING SECTION 4 OF THE ACT OF 1862.

AN ACT To amend an act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the fourth section of the act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts, approved July second, eighteen hundred and sixty-two, be, and the same is hereby, amended so as to read as follows:

"SEC. 4. That all moneys derived from the sale of lands aforesaid by the States to which lands are apportioned, and from the sales of land scrip hereinbefore provided for, shall be invested in stocks of the United States or of the States, or some other safe stocks; or the same may be invested by the States having no State stocks, in any other manner after the legislatures of such States shall have assented thereto, and engaged that such funds shall yield not less than five per centum upon the amount so invested and that the principal thereof shall forever remain unimpaired: *Provided*, That the moneys so invested or loaned shall constitute a perpetual fund, the capital of which shall remain forever undiminished (except so far as may be provided in section five of this act), and the interest of which shall be inviolably appropriated by each State which may take and claim the benefit of this act, to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

Approved March 3, 1883.

MORRILL ACT OF 1890.

AN ACT To apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of an act of Congress approved July second, eighteen hundred and sixty-two.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there shall be, and hereby is, annually appropriated, out of any money in the Treasury not otherwise appropriated, arising from the sale of public lands, to be paid as hereinafter provided, to each State and Territory for the more complete endowment and maintenance of colleges for the benefit of agriculture and the mechanic arts now established, or which may be later established, in accordance with an act of Congress approved July second, eighteen hundred and sixty-two, the sum of fifteen thousand dollars for the year ending June thirtieth, eighteen hundred and ninety, and an annual increase of the amount of such appropriation thereafter for ten years by an additional sum of one thousand dollars over the preceding year, and the annual amount to be paid thereafter to each State and Territory shall be twenty-five thousand dollars to be applied only to instruction in agriculture, the mechanic arts, the English language and the various branches of mathematical, physical, natural and and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction: *Provided*, That no money shall be paid out under this act to any State or Territory for the support and maintenance of a college where a distinction of race or color is made in the admission of students, but the establishment and maintenance

of such colleges separately for white and colored students shall be held to be a compliance with the provisions of this act if the funds received in such State or Territory be equitably divided as hereinafter set forth: *Provided*, That in any State in which there has been one college established in pursuance of the act of July second, eighteen hundred and sixty-two, and also in which an educational institution of like character has been established, or may be hereafter established, and is now aided by such State from its own revenue, for the education of colored students in agriculture and the mechanic arts, however named or styled, or whether or not it has received money heretofore under the act to which this act is an amendment, the Legislature of such State may propose and report to the Secretary of the Interior a just and equitable division of the fund to be received under this act between one college for white students and one institution for colored students established as aforesaid, which shall be divided into two parts and paid accordingly, and thereupon such institution for colored students shall be entitled to the benefits of this act and subject to its provisions, as much as it would have been if it had been included under the act of eighteen hundred and sixty-two, and the fulfillment of the foregoing provisions shall be taken as a compliance with the provision in reference to separate colleges for white and colored students.

SEC. 2. That the sums hereby appropriated to the States and Territories for the further endowment and support of colleges shall be annually paid on or before the thirty-first day of July of each year, by the Secretary of the Treasury, upon the warrant of the Secretary of the Interior, out of the Treasury of the United States, to the State or Territorial treasurer, or to such officer as shall be designated by the laws of such State or Territory to receive the same, who shall, upon the order of the trustees of the college, or the institution for colored students, immediately pay over said sums to the treasurers of the respective colleges or other institutions entitled to receive the same, and such treasurers shall be required to report to the Secretary of Agriculture and to the Secretary of the Interior, on or before the first day of September of each year, a detailed statement of the amount so received and of its disbursement. The grants of moneys authorized by this act are made subject to the legislative assent of the several States and Territories to the purpose of said grants: *Provided*, That payments of such installments of the appropriation herein made as shall become due to any State before the adjournment of the regular session of legislature meeting next after the passage of this act shall be made upon the assent of the governor thereof, duly certified to the Secretary of the Treasury.

SEC. 3. That if any portion of the moneys received by the designated officer of the State or Territory for the further and more complete endowment, support, and maintenance of colleges, or of institutions for colored students, as provided in this act, shall, by any action or contingency, be diminished or lost, or be misapplied, it shall be replaced by the State or Territory to which it belongs, and until so replaced no subsequent appropriation shall be apportioned or paid to such State or Territory; and no portion of said moneys shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation, or repair of any building or buildings. An annual report by the president of each of said colleges shall be made to the Secretary of Agriculture, as well as to the Secretary of the Interior, regarding the condition and progress of each college, including statistical information in relation to its receipts and expenditures, its library, the number of its students and professors, and also as to any improvements and experiments made under the direction of any experiment stations attached to said colleges, with their costs and results, and such other industrial and economical statistics as may be regarded as useful, one copy of which shall be transmitted by mail free to all other colleges further endowed under this act.

SEC. 4. That on or before the first day of July in each year, after the passage of this act, the Secretary of the Interior shall ascertain and certify to the Secretary of the Treasury as to each State and Territory whether it is entitled to receive its share of the annual appropriation for colleges, or of institutions for colored students, under this act, and the amount which thereupon each is entitled, respectively, to receive. If the Secretary of the Interior shall withhold a certificate from any State or Territory of its ap-

propriation the facts and reasons therefor shall be reported to the President, and the amount involved shall be kept separate in the Treasury until the close of the next Congress, in order that the State or Territory may, if it should so desire, appeal to Congress from the determination of the Secretary of the Interior. If the next Congress shall not direct such sum to be paid it shall be covered into the Treasury. And the Secretary of the Interior is hereby charged with the proper administration of this law.

SEC. 5. That the Secretary of the Interior shall annually report to Congress the disbursements which have been made in all the States and Territories, and also whether the appropriation of any State or Territory has been withheld, and if so, the reasons therefor.

SEC. 6. Congress may at any time amend, suspend, or repeal any or all of the provisions of this act. (Approved, Aug. 30, 1890.)

NELSON AMENDMENT OF 1907.

[Extract from "An Act making appropriations for the Department of Agriculture for the fiscal year ending June thirtieth, nineteen hundred and eight," approved Mar. 4, 1907 (Public—No. 242).]

Be it enacted by the Senate and the House of Representatives of the United States of America in Congress assembled,

* * * * * * * * * *

That there shall be, and hereby is, annually appropriated, out of any money in the Treasury not otherwise appropriated, to be paid as hereinafter provided, to each State and Territory for the more complete endowment and maintenance of agricultural colleges now established, or which may hereafter be established, in accordance with the Act of Congress approved July second, eighteen hundred and sixty-two, and the Act of Congress approved August thirtieth, eighteen hundred and ninety, the sum of five thousand dollars, in addition to the sums named in the said Act, for the fiscal year ending June thirtieth, nineteen hundred and eight, and an annual increase of the amount of such appropriation thereafter for four years by an additional sum of five thousand dollars over the preceding year, and the annual sum to be paid thereafter to each State and Territory shall be fifty thousand dollars, to be applied only for the purposes of the agricultural colleges as defined and limited in the Act of Congress approved July second, eighteen hundred and sixty-two, and the Act of Congress approved August thirtieth, eighteen hundred and ninety.

That the sum hereby appropriated to the States and Territories for the further endowment and support of the colleges shall be paid by, to, and in the manner prescribed by the Act of Congress approved August thirtieth, eighteen hundred and ninety, entitled "An Act to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of the Act of Congress approved July second, eighteen hundred and sixty-two," and the expenditure of the said money shall be governed in all respects by the provisions of the said Act of Congress approved July second, eighteen hundred and sixty-two, and the said Act of Congress approved August thirtieth, eighteen hundred and ninety: *Provided*, That said colleges may use a portion of this money for providing courses for the special preparation of instructors for teaching the elements of agriculture and the mechanic arts.

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